The Builder.

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Titian's Country.

ALMY evenings, gilded gondolas gliding on shining waters, with reflections of brilliant hues in the rippled shadows, snatches of love-songs floating in the air, garden banquets, with witty, sparkling converse, within sight and sound of such accessories, and a general impression of artistic luxury and sumptuousness, if not of voluptuousness, come into the mind at the first mention of Titian's country. To the general public the home of this great painter was Venice; and its palaces and lapping waters are the first objects thought of when his name is spoken. The letter of Il Priscianese, doubtless, accounts for much of this association of idea. The description given in it of the evening he spent with Titian in his pleasant garden, when Aretino, Il Sansovino, and Nardi were present at the supper, and his mention of the situation of the painter's house, as being within sight of the island of Murano, and of the fact that as soon as the sun went down, and the tables were set in the garden, that part of the sea within view was filled "with a thousand little gondolas adorned with beautiful women, and resounded with divers harmonies,—the music of voices and instruments," till midnight, have made us a little word-picture that is difficult to dismiss. But if we would know more of Titian's life than this one evening, or the series of similar garden feasts to which the notes of Aretino also bear testimony, we must dismiss it. Titian was no sybarite whose rest a rose-leaf would have disturbed; no epicure; no voluptuary; but a hardy mountaineer, "canny" rather than otherwise, hardworking, and indefatigable. Although for forty-nine years he occupied the house and grounds in which he gave these famous supper parties, he rarely failed in the summer time to visit the mountain district in which he was bred and born. This was Cadore, a town on the Piave, about eighty-six miles distant from Venice, in the heart of the Alpine region. On fine days in the early dawn, his native mountains could be descried in the horizon from his studio windows, ever reminding him of their majesty, and ever luring him back to their beauty. No wonder, then, that after he had passed the great age of four score and ten he still wended his way to their feet, charmed as at first, and strengthened with the bracing mountain air to climb their steep sides. Thither, after an interval of three centuries, he has recently been followed by an admirer, who has, as literally and exactly as may be, sought out his footsteps, rested on the route where he rested, gazed at the scenes he surveyed from the successive stages of his journey, searched out the pictures he saw in churches in or near the way, and traced some that he painted with his own hand to the country churches for which he designed them. We allude to a task just completed and described by Mr. Josiah Gilbert, whose familiarity with the Dolomite Mountains in the same part of the world enabled him to accomplish more than an uninitiated person was likely to have undertaken.* Some thirty years ago the Abbate Cadorin identified the Casa Grande, the large house with a studio extending over the extent of its upper floor, in which Titian lived for so many years, but which, up to that time, was not known to have been his residence. It is on the north side of Venice, rarely visited by strangers, and is now so blocked in with modern dwellings probably built upon the garden, as to appear like one side of a narrow court. It is subdivided into a row of houses, at the top of which, however, still runs the bold cornice of Titian's time, showing it was formerly one handsome residence. The Abbate ascertained that Titian had a mortgage upon the house, and that it finally became his, and passed at his death, with his other property, into the hands of his spendthrift son Pomponio. And now Mr. Gilbert has thrown as much light upon his birthplace in the little mountain republic, and shown how it was that mountains and forests were so much upon his canvas. He has done more, too, for Titian. The trumpeted blot upon his fame left by the imputation that many of the lovely faces he painted and made more lovely still, were those of his mistresses, Mr. Gilbert has laboured to remove. He believes that the famous "Violante" introduced in a picture for the Duke of Ferrara, which he spoke of as "the object dearest to him on earth," was his fond wife; and that another portrait of a beautiful woman sitting by his side was that of his dear daughter; and that probably the other paintings described as mistresses of Titian's were merely so called in default of names forgotten.

Walking in his garden, as we have said, Titian, when there was no opal haze rising off the sea or along the plain, could see the range of hills that sheltered his native place; nay, more, he could identify the Antelao, the chief guardian of Cadore. There is a picture of his, a shepherd playing on a pipe, in which Mr. Ruskin has identified this view as a background. And his great picture, the "Peter Martyr," so unfortunately destroyed in the burning of the hall in the ducal palace, portrayed a nearer range, through an opening in which the Antelao is seen, the hills of Ceneda. His famous "Battle of Cadore" afforded a legitimate field for their portraiture; and accordingly we find his native hills again depicted. Mr. Gilbert gives both a fac-simile of Mr. Ruskin's sketch of the Cadore mountains, and a view of the Alpine scene that was in the painter's mind when he sketched the outlines for his battle-piece. A more valuable illustration than either of these, we may as well add here, is a fac-simile of Titian's original design for the piece that was to celebrate the prowess of the Cadorini, a drawing that passed through the collections of Sir Thomas Lawrence, Esdaile, the engraver Rota, and the late Dr. Wellesley, at the sale of whose effects it was purchased by Mr. Gilbert. There are numerous illustrations of the mountain scenery etched by the author; several woodcuts, and a photograph of Fontana's rare engraving of the "Battle of Cadore."

We can assure our readers they would enjoy setting out for Cadore in Mr. Gilbert's company. He starts from Venice, so travelling northwards. He tarries first at Treviso, a stage of eighteen miles, where there is one of Titian's choicest works on the "Annunciation" in the Duomo, and where doubtless the great painter often scrutinised the works of his rivals, Giorgione and Pordenone. Thence he passes on to Conegliano, whence the road leads through a plain that is covered with vines, mulberries, and Indian corn, to Ceneda. Here is the range of hills seen from the studio window of the Casa Grande, an abrupt, grassy, serrated ridge, rising behind the town, one point crowned with a pilgrimage chapel. And here, too, Titian possessed property, including a villa, earned by his industry; for the inhabitants of a village close by agreed to transport stone for it, and find the manual labour, as the price of a picture for their church, also to supply him with corn and wine at a fixed price for eight years. Mr. Gilbert, of course, sought out the picture in the poor village, and found it in a "forlorn-looking little church," at the end of a long acacia-hedged lane, at the edge of a bare knoll. It is a Madonna, with two detached figures of apostles, all very much perished, and with some of the great master's work, doubtless, coarsely painted over. The view from this mountain village, looking down upon the vast plain between it and Venice, and catching glimpses of the lustrous city itself, just as glimpses of the hills are caught at Venice, is thus pictorially described by the author:—

"An expiring thunderstorm was moaning along the terraces of Alpine hills, rising into mist and blackness on the north; but, under a ragged canopy of cloud, the distant Julian Alps stood out in opal clearness, and a flood of golden light was poured over the plain, which spread boundless beneath the eye, east and west, and south, a sea of verdure, whose purple distance might have been the sea itself, as the shining campaniles, dotting it all over, might have been the sails of innumerable ships. One of the most distant due south was pointed out as that of St. Mark's. Thus arrayed in glory, and with all the advantage of vivid contrast, the prospect was one of the most captivating that can be imagined. . . . Fortunate Titian to possess a resort like this, which no Venice garden could rival in attraction, and that associated in one view almost all the elements of the highest landscape beauty. . . . Here beneath your feet the fortunes of the world have ebbed and flowed for ages. Now it was Roman armies passing to Eastern conquests; now barbarian hordes pressing westward into Italy; now German, now French invaders contending for the mastery."

Near Ceneda is Serravalle, the residence of Titian's married daughter Lavinia,—another charm that drew his feet to the spot; and the longer the stay amidst mountain influences, the more, we may be sure, his soul drank in a sense of their splendours. One of his favourite effects was a representation of ranges of low hills beneath a cloudy sky, but the peaks of the hills relieved against a sunset or twilight, just as he saw them, night after night, in this neighbourhood. His mixtures of woodland and plain, of sweeping lines of hills broken by a jutting rock, or sinking into soft vales, Mr. Gilbert also ascribes to his impressions from Ceneda. The Duke of Devonshire's picture, "St. John in the Wilderness," gives an expanse of country, with white mountain crags in the distance, which he considers is a reminiscence of Cenada; and a picture in the Royal collection at Buckingham Palace, in which mountains, clouds, light, and rain are marvellously treated, contains, he concludes, another recollection of views from this part of his journey. At Serravalle there is another picture by the master,—a splendid specimen and in good preservation, representing the Virgin and Child in glory surrounded by Angels, who fade into a golden haze above; and on each side of this hang a picture by his contemporary Pordenone. Leaving Serravalle, which is in a mountain gorge, and protected by a turreted wall climbing the steep hills around, a gloomy Lago Morto varies the scene, a haunted place where every one who ventures upon the water is supposed to meet with certain death; and then comes a great wood, ninety miles in circuit, overhanging the road on the summit of precipices, further on, with chamois, roebuck, wolves, and bears roaming on it, and believed to possess stalactite caves and hollows, and a great central cup-formed meadow seven miles in circuit.

This forest Mr. Gilbert penetrated, and describes very cleverly. When he had climbed and

* "Cadore; or Titian's Country." By Josiah Gilbert. London: Longmans, Green, & Co. 1869.

climbed, and threaded glade after glade of beeches, and then climbed again from spur to spur, and wound in and out among the beeches, he actually arrived at the vast central meadow, then speckled with herds feeding, where on a knoll stood a building composed of church, inn, and Government office, for the management of the timber. The reason he undertook this investigation was an impression that the wood must have furnished Titian with some of the inspiration with which he treated woodland scenes. And before reaching Cadore he makes another detour to the Val di Mel, a lovely conntry, that had also an influence upon the landscapes of Titian. A number of sketches accompany the description, some of the scenery, and others of drawings in which it is introduced by Titian. "Other painters," says Mr. Gilbert, "had dealt in mountain shapes of delicate blue reposing in pure ether, and for clouds scattered a few woolly patches in the void above. Titian, a mountain man, and better taught, brought the vapours down among the hills, gave them involution and coherence, wrapped them round his mountain peaks, or piled them into vast competing bulks far into the sky." He regarded the great mountains as friends, not enemies, his commentator continues, looking at them, not as a Lowlander shrinking from their awfulness, but as a mountaineer welcoming their terror. At last after many detours undertaken for love of the great master, and with a view to realise the influences that worked in his mind, and see every fragment of work that he has left, Mr. Gilbert arrives at Cadore. Seen in the distance, this is a small white town on the side of a hill, with hills in every direction around it. On approaching nearer, a modern looking church and an old brown tower are leading features rising out of the white houses. In the town is a little piazza with a central fountain, where, "go when we will, "says the explorer, "we shall find women washing at the fountain of 'limpid sweet water,' or sitting among piles of peaches and pears; one or two country carts, a few idlers with cigars in their mouths, several idlers without, and scores of ragged boys." On the south side of the piazza is the brown tower mentioned above, an appendage of the town-hall, in which is a large and somewhat tawdry painting representing Titian standing by a pedestal, in which are placed his palette and brushes. The house, too, in which he was born, now an osteria, is in good preservation. It is a small cottage in a lane, winding down the castle hill, and must have been the first one Titian came to after his three days' journey from Venice. The fresco he is said to have executed when only eleven years old, with the juice of flowers, is still to be seen. It is on the wall of a house Mr. Gilbert thinks must have belonged to his grandfather, which wall was once an external one, but owing to additions is now an internal one. A sketch of it is given. It represents a Madonna with the child standing on her knee, and a youth kneeling by her side in adoration. The background and drapery have suffered, but not from wanton destruction; the Cadorini in this and every other respect apparently delighting to honour their celebrated townsman, and preserve every vestige of his genius. In the strong room of the church they have preserved several letters in his handwriting relating to loans he was able to make the little community in the days of his prosperity; and in the church are specimens of his art. The groined ceiling he painted in arabesque, in a chamber in his cousin's house, has, however, been so unfortunately restored as to be no longer worth seeing. Titian's family, the Vecelli, appear to have first settled in Cadore, in 1320, in the person of Guecello, who came there in the capacity of administrator for its feudal lords, the Counts of Camino; and to have speedily risen to importance, their names figuring repeatedly in the annals. They seem to have acquired some property, for the house in which the painter was born was given to his father by his grandfather during his lifetime, and probably on the occasion of his son's marriage. Titian's elder brother, Francesco, lived in it, and carried on the timber trade of the place in it, till his death in 1560, when it became the property of the painter, then in his eighty-third year. Mr. Gilbert gives many interesting facts about Titian's household, both here and in the Casa Grande; but his chief effort consists in refuting the statement of the artist's contemporaries that he only excelled in portraits, and proving that he was not only the first painter that threw feeling into landscape, and so created a new branch of art, but that all his inspirations were due to the magic of his mountain home. Mr. Gilbert's book is a very pleasant addition to the literature of art. No one may plume himself upon knowing all that is to be known about Titian and his masterpieces, his household in Venice, and his first home in Cadore, until he has read it.

SUB-AQUATIC TUNNELS.

THE anticipated success of a well-designed, though cheap and simple, tubular driftway under the bed of the Thames, has attracted a considerable share of public attention to the subject of subterranean, or sub-aquatic, communication. The idea of a tunnel, indeed, has been rendered so familiar to the inhabitants and to the visitors of London by the convenient service of the Metropolitan Railway, that persons who are devoid of the slightest idea of the difficulties with which the engineer has to contend, from the moment when he bids farewell to open daylight, come to speak of a tunnel as a very ordinary piece of work, and gravely discuss the feasibility of a structure of this nature, of the modest length of 20 miles, and at a level dipping some hundreds of feet beneath the bottom of the Straits of Dover.

Mr. Barlow's success, we trust, is now beyond doubt. Of the 1,320 ft. demanded for his driftway, he has already safely constructed upwards of 1,000 ft.; and the tube, advancing from a shaft on the northern bank of the Thames, has been pushed beyond low-water mark on the opposite shore. In his letter published a few days since, Mr. Barlow asserts that the very moderate estimate of 16,000*l.* for the entire work will not be exceeded. Should this prove to be actually the case, there can be little doubt of further demand on the skill of so economical an engineer. But the reason for which it occurs to us that it is most important that the public should not be misinformed as to the actual risks and difficulties against which the engineer of a tunnel has to provide, is as follows.

In all normal times of engineering activity a marked and novel success, especially if it be a financial success, is apt to force a heavy after-crop of more or less similar schemes. In these cases it too often follows that the modest anxiety and patient forethought which have led to the first triumph are altogether discarded by those who rush to follow in the same path. B was tunnelled under the Thames; therefore C and D will fight for authority to tunnel under the Mersey, and E and F to tunnel under the Channel. Talk of the latter project as wild, and its supporters will point with triumph to the little *adit* by the Tower.

Tunnelling, indeed, is not an invention of the present day nor of the present century. That great engineering people, to the influence of whose institutions we owe so much of the very framework of modern civilization, wrought tunnels which endure to the present day. Two thousand two hundred and sixty-four years ago, the miners of Furius Camillus drove the famous *Emissarium* through a part of Mount Alba, and tapped the swelling waters of the lake of that name. Etruscan science, on this occasion, directed Roman energy. But the *tufa* of Italy, a material which behaves under the pick of the miner in a mode very similar to the English chalk, is bored and drilled with shafts, and *adits*, and lofty tunnels, in all directions. The gallery of Posilippo is familiar to every visitor of Naples. The curious system of galleries and caverns known by the name of the Grotto of the Sibyl, dates from a remote antiquity. Whether it were from an observance of hydraulic laws, from want of a trustworthy material for pipes, or from the conviction that the steady unchecked action caused by gravitation was best suited for the permanence and purity of a water-supply, we need not now pause to inquire. But certainly a knowledge of the engineering works of ancient Italy might have taught the English predecessors of Brunel more than they ever knew about tunnelling.

The school for tunnelling in England has been, of course, underground. In our mines, especially in our coal mines, the problem of constructing subterranean galleries has long been solved. In certain districts, such, for instance, as that of the Peak, in Derbyshire, vast natural caverns open out in the living rock, glittering, when lighted up by the miner's torch, with sparkling stalactites, accessible, in places, only by narrow and low-roofed passages; and at times traversed, or occupied, by rivers, which long burrow from the light of day. In one Derbyshire cavern a river precipitates itself down an unfathomable abyss, and what becomes of the water is unknown.

But with all our practice as to mining, and all our acquaintance with natural subterranean galleries, the progress of the tunnel engineer was slow in this country, until the exigencies of the line selected by Stephenson for the London and Birmingham Railway led to the simultaneous construction of four wide and lofty tunnels, of dimensions before rarely attempted. It is true that the method of piercing the barrier that divided valley from valley had been pointed out, no less than the main directions of the best line of communication had been indicated, by Telford. The Grand Junction Canal was the pioneer and guide of the London and Birmingham Railway. But the canal tunnels were reduced to the minimum cross section. They admitted a canal boat, with the depth of water requisite to float it, and no more. In the earlier tunnels the boats were propelled—or, we might say, coaxed through—by the barbarous and painful expedient of the boatman's lying on his back and pressing his feet alternately against the roof of the tunnel.

In the case of the Thames and Medway Canal, a tunnel of larger dimensions was cut, through the chalk, at Rochester. A narrow tow-path was formed, in this instance, by the side of the water-way. In that tunnel, of some 2,000 yards long, the chalk in some places gave way, and lofty caverns diversified the usual elliptic section of the arch, which, in only a few places, was protected by brickwork. When the Gravesend and Rochester Railway was laid through this tunnel, the Government Inspector, Lieut.-Gen. Sir C. Pasley, satisfied himself of the solidity of the chalk roof by the military expedient of *firing at it from a mortar*. He only used, however, wooden plugs.

The Kilsby tunnel was the scene of a most protracted, and for a long time a precarious, struggle of Robert Stephenson, with the great enemy of the tunnel miner—water. So long and so continuous was the influx, and so far were the methods at first employed from being adequate to keep it under, that the abandonment of the work was at one time all but resolved upon. A quicksand full of water had been tapped by the tunnel, and, till this was emptied, satisfactory progress was impossible. Notwithstanding the increased command of steam and of mechanical power which the last thirty-five years have placed at the command of the engineer, the experienced man will yet even now look grave at the prospect of tunnelling through a hill that is likely to be wet, unless he can allow of the tapping of the springs, and the *bleeding* of the internal lake, by gravitation.

In his contest with the water at Kilsby, Robert Stephenson could indeed avail himself to some extent of the experience gained by Sir Mark Brunel and his assistants in their long struggle with the Thames. But the Thames Tunnel was unlike any other work. It was long considered, deservedly, and is still ranked by foreigners, as one of the wonders of the world. Skill, patience, energy, enough to have reared a monument of the loftiest dimensions, were buried in that horrible mine. Engineer after engineer was knocked up by labour, by damp, and by the ill effects of the deposit of the London sewage in the bed of the river. But the Thames Tunnel was a work *per se*,—a marine, or rather river, work, under most unfavourable circumstances, rather than a tunnel proper. The normal idea of the latter work is that of boring through the earth. The material may vary; props, and struts, and polling boards may be more or less constantly required; water may pour in, and necessitate constant pumping; but these are the accidents of the case (and very unpleasant accidents they are). They are not essential or constant obstacles to the boring through of a rocky or chalky barrier. Earth, or rock, is the natural bed of the ordinary tunnel. But Sir Mark drove through shifting mud. The square platform which grew together, brick by brick, as his many-partitioned shield was driven forward, was often within but a few feet of the bed of the Thames. It is even probable that, had the problem been affronted in the first instance, the engineer would rather have preferred to construct a double brick arch, working from one end, through nothing but water, than to deal with the ever-varying difficulties of mud, and silt, and clay, and wholesale inpour of the tide.

Indeed, Mr. Barlow claims for his well-considered and simple shield, the merit that it would

be so adjusted as to drive a tube ahead through water. It is far from being impossible that such a procedure should be carried out.

In the case, however, of the actual subway, the chief point to note is, that a wise prevision has been exercised in fixing the level of the work so deep in the London clay that not a drop of water has entered the drift-way. That necessary for the purposes of the work has been sent down the shaft. In fact, though no engineer would have felt justified in making the experiment, there is little doubt that the simple expedient of mining through the clay at the same level, "polling" the drift-way, and following the miners by a gang of bricklayers, who should have turned a brick and a half ring round the aperture, would have met with uninterrupted success. The one thing necessary in a case where, as in this instance, no faults occurred in the clay, would have been to keep up such a rapid rate of progress that the arch should always have been keyed in before the clay began to "creep." How certain, and how formidable, that creeping action is, Mr. Stephenson had ample proof in the Primrose-hill Tunnel. Under the influence of the successful experience of the Watford Tunnel, driven for the most part through solid chalk, the originally designed invert of the Primrose-hill Tunnel was countermanded. But the clay betook itself to fill up the hole drilled through its bowels; and the invert had to be put in, in very much of a scramble, after all.

Men familiar with this description of work looked with a sort of amused surprise at the rose-coloured statements which from time to time appear in the public journals as to a "Channel Tunnel." They do not say that such a work is impossible. They do not even care to form a distinct opinion on that head. But they are very well contented with the applicability of the proverb, "*Le jeu ne vaut pas la chandelle.*"

A better communication with France is no doubt both extremely desirable and perfectly feasible. Our present mode of transit, obnoxious as it is to the majority of ourselves, islanders as we are, and still more miserably and terrifically obnoxious (to judge from their countenances on deck) to most of our Continental neighbours, is hardly up to the requirements of the day. A safe, speedy, regular transit, free from doubt, from risk, and, above all, free from the fear of that horrible *mal de mer*, is what the English public have the right to expect of the profession of civil engineers, and what that profession will place at the command of the public, on the one sole necessary condition of being furnished with funds. These funds must be large, for the waves of the Channel are rough and tempestuous. But to speak of the sum requisite as one which would be adequate to the construction of a submarine tunnel, 30 miles long and 250 ft. (some say yards) below the level of the *Manche*, is, to our mind, nothing better than grave trifling with an important practical subject.

It is curious to see how the non-professional imagination has not only run to flower, but to seed, about this question of crossing the Channel. The most remarkable feature in the case, moreover, is, that hardly any scheme is so absurd as not to find solemn-visaged propounders and open-mouthed admirers. It is evident that the material on which Law counted as the basis of his imaginary wealth is still to be found in rich abundance within our shores. It is only necessary to dig. *Les badauds ne passeront jamais.* Neither railway kings, with their royal mode of making things pleasant, nor colossal contractors, with their lines to develop traffic; nor financial companies, with their periodical crashes; nor Brighton directors, with their eight millions laid out so as to earn an annual loss, exclusive of the perished and annihilated interest; nor Chatham and Dover magnates, with their discounts of all per cent., have had more than a temporarily enlightening influence. We are told of scientific French evidence in favour of a grand Channel tunnel. By way of making a few preliminary inquiries, the Chancellor of the Exchequer is to be asked for the trifling sum of a couple of millions on account. The French Emperor, it is added, looks favourably on the scheme, and has given a conditional promise of as much more. All right; we rejoice to hear it. We have only one point on which to insist. Let us get the French Emperor's money down *first*. Then it will be time enough to inquire about our own instalment.

It is proposed, as caution is always desirable in engineering matters, that a drift-way should just be run under the Channel in the first instance, to prepare the way for the tunnel. The suggestion is at once economical, prudent, and practical. Let us suppose a drift-way to be run, some 5 ft. or 6 ft. high and wide. Is it to be timbered—or arched—or lined with iron? As the meeting from the two ends would be a thing forbidden by the calculus of probabilities, it will have to be worked from one extremity. As we get on—say beyond the twentieth mile, how will the miners be sent in to their daily work?—how supplied with air, or with materials?—how will the excavated chalk be sent back to land?

Galleries in chalk are infested, as miners are well aware, with choke-damp. What would be the quantity of choke-damp that would exude from 280,000 superficial yards of chalk surface (when the drift-way had advanced *only* twenty miles), and how would it be withdrawn?

Water infiltrates through chalk. A very small head of water will cause infiltration for a considerable distance. Where bands of flint occur they act like layers of sponge. All the wells in Strood, within a considerable distance of the Thames and Medway Canal, were rendered *salt* by infiltration through the chalk, when the brackish water of the Medway was admitted into the canal; and the company had to pay, and did pay, heavy damages in consequence. What would be the infiltration through the grey chalk due to the pressure of the water of the Channel? What would be the difference between the exudation from the 280,000 yards of surface at high tide and at low tide? How would the water, on the most modest estimate of its rate of infiltration (which, by the bye, would increase *de die in diem*), be removed? A few of these practical questions must be answered before we can undertake to speak, with any idea of serious investigation, as to the prospects of the Channel Tunnel.

But we are not limited to one scheme. Their name is legion. One amateur proposes the formation of an embankment across the Channel, the top to be some 30 ft. *below* low-water mark. Rails are to be laid on this embankment (which is kept down for the benefit of navigation), and long-legged carriages, of novel structure, are to run backwards and forwards over the submarine railway. We should like to let the laying of the permanent way to the projector.

Another gentleman proposes a floating tubular tunnel. It is to be moored at certain distances by chains. The process of anchoring and straining the chains at the bottom of the Channel would be highly interesting. Supposing—not to make two bites of a cherry—the tube complete, moored, and at work. What a grand idea to think that the whole service of the Continent, and the lives of all who happened to be at any time in a structure that recalls the legend of Mahomed's coffin, would be at the mercy of a beggarly gun-boat, or a mischievous torpedo!

In fact, we warn our friends, when called on for subscriptions for a Channel bridge, or tunnel, or hybrid between the two, to button up their pockets, and wait. The limits of the service of the engineer are, no doubt, rather financial than physical. The limits of speculative imagination appear to be equally removed from the barriers of prudence and from those of experience.

Returning for a moment to the Tower subway, we would mention that the work has been carried forward by the advance of a tubular wrought-iron shield, about 8 ft. in diameter, which is so constructed as to form a close bulkhead in case of need. As this shield is pushed forward by screws, the excavators opening out the ground for a few feet in advance, the permanent tube of the subway is fitted into place behind it, being cast in 18-in. lengths, each consisting of four segments; three of which are of equal size, and the fourth is a mere key-plate, 14 in. or 15 in. wide. Length by length these narrow plates are bolted on the face of the tube, being protected, until firmly fixed, by the shield. The introduction of the narrow wedge-piece has proved a great facility in fitting together the segments of the tube.

The internal diameter of the completed tube is 7 ft. A narrow railway will be laid throughout, and the passengers, being lowered down the shaft by a vertical hoist, will be carried through the subway in an omnibus specially constructed for the purpose, propelled partly by gravity and partly by haulage by a stationary engine. A curious feature in the actual construction of the tunnel is the filling up of the small space, excavated outside of the tube, with blue lias grout. A hole is left in each plate, and through this the grout is driven by a large syringe until the aperture is completely full. The mixture dries so rapidly that it is unnecessary to plug up the holes on the removal of the nozzle of the squirt. How far that irresistible oxidation of the iron (by absorption from the grout), of which we have recently seen such a striking instance in the tomb of King Henry VII., will proceed, remains to be seen. It seems almost a penny-wise-and-pound-foolish proceeding not to have enamelled, galvanised, or otherwise protected, the inaccessible exterior of the tube from a very formidable danger which there is no means of detecting until it is too late. Mechanically considered, the injection of the grout is admirable. Chemically regarded, we fear that the same cannot be said.

We avail ourselves of the opportunity to call the attention of all managers of tunnels, mines, and similar works, to the immense facility afforded to the work by the use of the electric telegraph. A constant and instantaneous communication is kept up by the wires between the engine-driver and the face of the work. Lowering and raising of materials, and admission of air by the fan blast, are thus precisely directed by the foreman on the work itself. The sense of confidence that would be inspired in any case of danger by the possession of this mode of communication would be beyond all price.

NOTES UPON SOME OF THE DUTCH TOWNS.

ENGLISH travellers passing from Rotterdam to Belgium or Northern Germany generally perform the journey as rapidly as possible, and scarcely ever think of stopping for a single hour on the way. In fact, most people imagine that there is little to be seen, and that the sooner this long and monotonous day's travelling is over the better. Even those who delight in antiquity and are interested in archæology usually content themselves with the idea that the flat plains of Holland contain nothing to interest them, and that the best thing to be done is to get on as quickly as possible to Bruges or Cologne. Now we do not for a moment mean to imply that the architecture of Holland is so fine as that of Belgium or Northern Germany, or that the Mediæval buildings existing there are so grand or in such a perfect condition as those in the two last-named countries; yet we think that the student of architecture would find a few days well spent in examining some of the ancient towns between Rotterdam and the German frontier. We will point out a few places at which we think those who take an interest in Mediæval art might find things to interest them.

The third station from Rotterdam is Gouda. The principal church here is well worthy of a visit. It was commenced in the year 1485, but was nearly rebuilt after the fire, which took place in the year 1552. The dimensions of this church are extraordinary; its length is over 300 ft., and the height to the top of the wooden barrel vaulting of the nave is over 140 ft. The architecture is, of course, very poor, but what is most worthy of notice is the wonderful amount of stained glass which this church contains. There are nearly sixty windows entirely filled with stained glass, varying in date from 1553 to 1603. The earlier windows contain religious subjects, but those which date after the year 1572-9 (at which period the Protestant religion became established in this part of Holland) are filled with allegorical subjects, and are inferior, both in design and execution, to the earlier windows. Of course, the style of all these windows is Renaissance, and many of them were the works of the brothers Crabeth. It is worthy of note that one of these windows was given by Queen Mary of England, and contains a very good portrait of that queen and her husband.

After again travelling for about two hours by the railway, one's attention is attracted by a tower of noble elevation and a lofty detached choir, the whole surrounded with a belt of fine trees, with here and there an old church tower cropping up. This is Utrecht, once the seat of the prince primate of all Holland, and one of the most important bishoprics in all Europe; at later times celebrated for the "Synod," which decided the established religion of Holland, and even now an important and flourishing town, with 60,000 inhabitants.

Utrecht contains *three* cathedrals and twenty-three churches. Of the cathedrals, one belongs to the Calvinists, one to the Roman Catholics, and one to the Jansenists. Of the churches, ten belong to the Calvinists, seven to the Roman Catholics, four to the Jansenists, one to the

Lutherans, and one to the Remonstrants, or Arminians.

The cathedral (Calvinist) is the relic of what was once a most glorious church. All that now remains are the choir and aisles, transepts, and the great western tower. The nave and aisles were allowed to fall into disuse, and after many years of neglect, were destroyed by a thunderstorm at the end of the seventeenth century. When perfect, this church was over 400 ft. in length, and was probably the largest church in the "Low Countries." The great western tower is 70 ft. square at the base, and rises to the height of 350 ft. For two-thirds of the height it is of brick, and very plain, but the upper portion consists of a beautiful open lantern octagon on plan, and entirely of stone. In each face of this lantern is a large unglazed three-light window. This lantern is crowned with a pyrimidal slate cap; it probably originally terminated with an open-work stone spire. This tower was erected between the years 1321 and 1382. The space originally occupied by the vast nave and aisles is now an unenclosed square. The transepts are of great size and magnificence, with large windows at the ends. Both the transepts and choir bear a strong resemblance to Cologne. The height to the vaulting of the choir is rather over 100 ft. The great apse is surrounded by seven apsidal chapels. The choir was erected between the years 1298 and 1329. The transepts are probably 40 or 50 years later. the detail of every portion of the building is rich, but not overdone with ornament; the tracery of the windows is remarkably elegant. The interior of this superb church has been frightfully illtreated; the only portions now used are the transepts, and they are formed into a conventicle, which bears a stronger resemblance to a lecture thea're than a Christian place of worship. This portion of the building is divided off from the choir by a wooden "hoarding" nearly 60 ft. high. The choir itself is entirely bare and empty; but even with these disadvantages its noble arches and graceful columns at once attract observation. The vaulting is simple but very good, and the row of chapels surrounding the apse have a most charming effect even in their present neglected and degraded condition. A fine fifteenth-century monument of black marble is pointed out as the tomb of St. Boniface, but there is not the least reason for this supposition. There is also a good Cinquecento monument to Bishop Egmont, who died in 1549. On the south side are the remains of the cloisters. They are very rich, and rather wild late Geometric work. Some feeble attempts at restoration have been made outside the choir of this cathedral, but they are not to be commended, and have done rather more harm than good .

The churches of St. Peter and St. Gertrude contain crypts and other remains of the Romanesque period, but so spoiled by the barbarous treatment of the last three hundred years, that they are of little value to archæologists. St. James, St. John, and St. Nicholas and St. Mary, have been large and striking fifteenth-century churches built of brick; but they have been denuded of every kind of ornament which they once possessed; even the tracery of the windows and the capitals of the columns have been cut away as savouring of "idolatry" and "superstition." The interiors of these churches are covered with whitewash. In startling contrast to these is the Church of St. Catherine, formerly belonging to the Carmelites, but now the Roman Catholic metropolitan cathedral. This church was erected in the fourteenth century, and is a fine building, consisting of a nave and aisles, of five bays, transepts, and a very spacious choir without aisles. Over the junction of the nave and transepts is a *flèche* of metal-work. The whole church is vaulted in stone, and is lofty and well proportioned. It has lately undergone a very judicious and costly restoration, and, what strikes one as most remarkable in Holland, is the fact that every portion of the interior is decorated with colour and gilding, but the whole has been so skilfully done that the effect, though brilliant, is not gaudy. The walls and columns are painted of a parchment tint and have "masonary patterns" traced upon them in dark red lines. Half-way up the nave columns, which are cylindrical, is a kind of conventional arcade or band of flat niches. These are at present left white, but will, we suppose, be eventually filled with subjects or single figures. The spandrels of the nave arches have large angels, with their wings extended, holding emblems, &c. The clear-story is simply and quietly treated, and the vaulting is pale blue, with very rich borders and powderings. All the windows of the nave are glazed with mosaic patterns in pale colours. The choir stalls and sedilia are most elaborately carved in oak, and are of remarkably good design. The same may also be said of the bishop's throne and the pulpit: the latter has a canopy reaching to the roof of the church. The side altars, though not bad, are not so satisfactory. The high altar is temporary, as is also the glazing of the choir windows. We were unable to find out who was the architect to this very remarkable work of restoration, but from the care and knowledge displayed, we think we cannot be wrong in attributing it to Mr. Cuypers. It is proposed to add a new west front, flanked with towers, surmounted with spires, to this church. The foundations for this work have been laid some time since. One of our illustrations represents the panelling of the west door.* The great singularity is that the framing of the door is external. Although this is by no means uncommon in Italy, it is hardly ever to be met with north of the Alps in Mediæval work.

The other churches in Utrecht possess nothing remarkable or worthy of notice. There are several good examples of ancient domestic architecture, particularly one large house near the cathedral, and a building now used as a charity school.

Arnheim possesses two fine churches. The great Calvinist church is an immense building, chiefly of brick, with a lofty square tower at the west end, a spacious nave and aisles, transepts, choir, and aisles, and an apse with the aisle continued round it. The south porch is a good specimen of late fourteenth-century work, with some good canopy work. The choir is cut off from the nave by a metal screen, and is disused. The whole church is vaulted apparently in *wood*, but every portion of the interior is covered so thickly with whitewash that it is difficult to say for certain what is the material used in any part of the building.

The church of St. Walburg (Roman Catholic) is rather a remarkable building. The west front, flanked by two square towers crowned with slate spires, is exceedingly plain Romanesque work. There is a short nave of three bays, transepts, and a chancel of three bays, with an apse. The whole of this portion of the church is good, but plain fourteenth-century work. The whole church is vaulted in stone. The interior is fitted with modern Gothic altars of poor design, and the pulpit which formed such a conspicuous object in the Dutch court of the Great Exhibition of 1851 is to be seen here. It is from a design by Mr. Cuypers, but very inferior to his later works. Some of the windows are being filled with stained glass. A large Roman Catholic church has just been built near the railway station. The exterior is unsatisfactory, and the spire is what we should call "Brummagem;" the interior is rather striking. The whole church is vaulted in stone, and the walls are lined with the same material. All the windows are of stained glass. The church is, in fact, rather a costly than a successful example of Modern Gothic architecture.

Our space will not allow us to enter into any account of Zutphen or Nimeguen, though both these places are well worthy of a visit.

The other example of panelling given in our illustration is from the door of an old house at Münster, in Westphalia. It is highly probable that this kind of door, with the framing external, was not uncommon in Holland and Westphalia during the Middle Ages; very few examples, however, are to be met with. From the fact that this sort of door is found in Lombardy, and not in either Belgium, France, or South Germany, it is most probable that the Dutch took the idea from the Lombards, who probably borrowed it from the East.

Competition in the English and Belgian Iron Trades.—Recently, some iron girders, rolled and riveted, were required in the construction of a mansion between Leeds and Bradford, and tenders as to the price at which they could be furnished, in accordance with a specification, were sought from a number of ironfounders in both England and Belgium. The highest tender received was from a Bradford ironfounder, and was 120*l.*, and the lowest, which included the delivery of the girders on the spot, was from a Belgian ironfounder, and was 63*l.* The latter was accepted.

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* See p. 746.

THE SEWAGE QUESTION.

Consideration of the Subject by the British Association. — At the late meeting of the British Association, at Exeter, the subject of town refuse was in several ways brought prominently forward; and in the chemical and mechanical sections the various methods of dealing with sewage refuse were so fully discussed that it is evident this subject is now felt by the Association to be one of the most urgent importance, especially in reference to the well-being of town populations. At the previous meeting, Mr. Grantham had moved for the appointment of a committee to inquire into the treatment and utilisation of sewage, and the preliminary report of this committee was brought forward in the chemical section by Dr. Paul. A series of questions had been sent to the various local sewer authorities throughout the kingdom, and replies had already been received from upwards of 100 towns, most of which have adopted the water-carriage system, either wholly or partially. A few of these towns are not sewered at all; in many the sewerage appears to be only partial, and frequently it is very defective. In fifteen cases where the water-carriage system has been adopted the sewage is applied as manure in irrigating land. The results obtained in those cases vary considerably according to local condition, so far as relates to the expenditure and return; but in most instances, while the application of sewage for irrigation is said to have been attended with marked improvement in the state of the neighbouring rivers and watercourses, there does not appear to be any evidence of prejudical effects from the irrigation on the sanitary condition of the localities. In regard to the treatment of town sewage with the twofold object of preventing pollution of rivers, and of extracting from it material of value as manure, it appears that, so far as the committee has been informed, the various plans tried for the purpose have been only partially successful. Mechanically suspended material is generally separated both by filtration and by those methods which comprise the use of some precipitating agent; in the latter case there is sometimes also a partial extraction of the substance held in solution; but this is always so partial by any method yet tried, that the effluent water still retains much of the organic substance that chiefly causes the pollution of rivers, and much of the materials that are of value as manure. The results said to have been obtained in this way are generally described as satisfactory, so far as the appearance of the river is concerned. It would appear, as regards liquid town sewage, that the only course to be adopted at those places where the water-carriage system of removing town refuse is established, is the application of the sewage to land by irrigation. For the settlement of the mode in which that is to be effected, a number of questions require to be considered as to the influence of local conditions in regard to the cost and possible return. As yet the committee has not sufficient information to report on this subject, and it will be the object of their future labours to collect the information. The report says as to—

"Treatment of Liquid Sewage.

At fifteen of the places which are sewered wholly or partially, the liquid sewage is subjected to treatment either by allowing it to remain for a time in settling tanks from which the deposit is occasionally removed, as at Burton-on-Trent, Birmingham, Epsom, Farnham, and Andover, or by filtering, as at Uxbridge and Ealing.

In eight instances deodorising materials are added, such as lime and carbolic acid, as at Carlisle and Harrow. Lime alone is used at Leicester; lime and chloride of lime at Luton; perchloride of iron at Cheltenham; perchloride of iron and lime at Northampton; ferruginous clay wetted with sulphuric acid at Stroud; and at Leamington the lime treatment has lately been superseded by the method proposed by Messrs. Sillar & Wigner.

By this treatment the sewage is clarified, and a deposit is separated, which is sold as manure.

In regard to the effects thus produced, it is stated that at Leicester the sewage runs off as pure as ordinary rain water; at Ealing it is said to be free from smell, colourless, and harmless to vegetable or animal life; at Stroud and Luton the effect is stated to be satisfactory; at Harrow the nuisance is said to be somewhat mitigated; and at Abergavenny the stench is said to be abated by this treatment of the sewage.

At Bury St. Edmund's, upward filtration through charcoal and gypsum has been abandoned in favour of costly irrigation. At Banbury, treatment of the sewage has failed. At Hereford, where it was proposed to be adopted in the parliamentary places, it has not been tried, on the score of expense. At Tunbridge it is about to be tried; and at Hastings and Cambridge experiments are being made.

The cost of treatment amounts, at Leicester, for a population of 7,500, to 300*l.*, and the cost of the plant for the purpose was 3,000*l.* At Luton, with a population of 18,000, the annual cost is 500*l.*; at Cheltenham, with a population of 36,000, it is 350*l.*; at Uxbridge, with 7,000 population, it is 200*l.*; and at Alton, with 3,300 population, it is 48*l.*

The solid deposit obtained by treating liquid sewage is sold at prices varying from 6d. to 2s. 6d. per ton. At Leicester as much as 5,000 tons are produced. At Luton the deposit is mixed with night-soil, at Banbury with street-sweepings, and at Stroud it is made the basis of a manure that is sold at 7*l.* 10*s.* per ton."

The committee sought to obtain information from foreign countries as to the practices adopted there; and, through the liberal assistance of the Home Secretary, Mr. Bruce, a number of official reports had been obtained from various foreign Governments. From these documents it appeared that, as a rule, the use of waterclosets is but rare, both on the Continent and in America. The complete sewerage of towns as a means of removing excreta refuse is even still more unfrequent. The general practice is to use either the old form of privy and pit, or some improved modification of it. In some towns, still more objectionable methods are adopted—as, for instance, in Berlin, with a population of about 600,000, where 50,000 night-stools are said to be in daily use. Hamburg is the only town on the Continent where the water-carriage system is carried out to any great extent. At other places portable reservoirs are used, and these are periodically removed and emptied outside the town. At some places the householders pay for the removal of the refuse; at others, they sell it to neighbouring farmers. Where the town authorities carry out the plans for disposing of town refuse, a profit is sometimes derived from the sale of it. At Groningen, for instance, the yearly profit amounts to 1,600*l.*; at Antwerp, to 2,700*l.*; and at Ostend, to 700*l.* At other places the return only just covers the cost of removal, and at some places the expenditure is much greater than the return, as in the case of Stockholm, where the difference amounts to more than 2,000*l.* a year.

Mr. Stanford read a paper in the Chemical Section, in which he endeavoured to show that the water-carriage system as at present carried out could not be regarded as perfect. He strongly advocated a particular form of dry-closet system, in which the use of earth, as in Moule's closets, was superseded by the [certainly impracticably expensive] use of charcoal, so as to produce a mixture that could either be used as manure, or charred so as to yield a fresh supply of charcoal for future use. The earth system for towns is unfeasible enough, but this improvement on that system would be far worse.

In the Mechanical Section a paper was read by Mr. Barry, advocating the treatment of liquid town sewage with some precipitating material, as practised at Leamington, and opposing the use of sewage for irrigation, on the grounds of expense and detriment to the public health. A long discussion took place, in which the facts already mentioned were referred to by the several speakers; and the president, Admiral Belcher, somewhat surprised the meeting by the statement that he was the originator of the Thames Sewage Scheme, by which the outlet should be extended through Essex, and the sewage delivered by the river Crouch into the German Ocean. The interest excited by this subject was still further evinced by the re-appointment of Mr. Grantham's committee, together with the addition of Mr. W. Hope, of Barking, and by the grant of 50*l.* for the prosecution of the inquiry.

Sewage Irrigation at Banbury.—The sewage of Banbury formerly polluted the Cherwell, but certain parties complained of the nuisance, and a decree of the Vice-Chancellor ordered its discontinuance. The Board of Health subsequently rented a farm of 137 acres, about a mile from the town, on the Northampton side of the Cherwell, over which they have since continued to pump the liquid, the quantity being 300,000 gallons in the twenty-four hours, which is the refuse of 11,000 inhabitants. The solid matter is detained in tanks, mixed with the sweepings of the streets, and with ashes, and disposed of to canal boatmen, who sell it to the farmers. The rent of the farm is 616*l.* 10*s.* Thirty-five acres were laid down with Italian rye-grass, which is now in its third year. During 1868 the sales of produce realised upwards of 1,300*l.* Up to the present time for this year the amount received has been 912*l.* 15*s.* 10*d.* This sum includes successive cuttings of rye-grass, mowing grass, lattermath, and cabbages. There is now growing on this sewage farm a crop of mangolds (16 acres), the like of which is rarely to be met with. A great many of the roots are 24 in. in circumference, and it is impossible to guess what size they will attain before the end of the season. Good experience, *pro* and *con.*, is being gained with other crops; and the irrigation scheme at Banbury has, so far, proved a success. The liquid, after passing over the land, enters the Cherwell some distance below the town. No nuisance is complained of, and fish may be seen disporting in the river close to the outfall of the effluent water from the farm. It is calculated that the receipts from the farm this year will exceed those of last year.

The Bradford Sewage.—Mr. Angus Holden, son of Mr. Isaac Holden, late M.P. for Knaresborough, has been endeavouring to establish the practicability of purifying the dark and feculent streams of Bradford, and of utilizing the matter removed from it for a beneficial end. A piece of ground in the immediate proximity of the main outfall of the sewerage of the corporation having been placed by that body at the service of Mr. Holden, he has erected his works there. The experiment is watched with deep interest by neighbouring corporations, and particularly by those of Bradford and Halifax, both of which have already been involved in litigation, the first on account of the alleged pollution of the Aire, and the second for fouling the waters of the Heffle. The results are said to be so far as a week or two's proceedings can show, quite satisfactory. The process used is described as being a combined chemical and mechanical process, of French invention, whereby the sewage water is deprived of its impure and fœtid matter, which is retained for some useful purpose, while the apparently pure water from which it has been removed is sent forward on its natural course. The Bradford corporation is under legal obligation to deal with the question practically before the 11th of January, 1872.

The Liverpool Sewage Utilisation Company.—This company, in which the Liverpool Corporation are largely interested as shareholders, have just commenced operations on the first portion of their works, which have been constructed between Sandhills (at the north end of the town) and Ince Blundell. The company themselves have taken about fifty acres of land at Ince Blundell for the purpose of making experiments and testing the merits of the project. It has already been ascertained that the engine at Sandhills is sufficiently powerful to admit of the sewage being pumped up from the well at the station, passed through the pipes, and distributed over the land at Ince Blundell within from twenty minutes to half an hour. Branch pipes have been laid down to a farm at Ince Blundell, and they are also about to be laid down upon other farms in the neighbourhood.

The Sewage Question at Leamington.—Sewage deodorisation at Leamington has recently entered on a new phase, and the patent process adopted for the defecation of the sewage and the conversion of the solid residuum into "native guano" has already attracted the attention of the governing bodies of many towns. The Leamington sewage works are situate on the western side of the town, close to the viaducts by which the London and North-Western Railway crosses the Leam, and about half a mile from the Avenue Station. The works, which were originally constructed for the lime system of deodorisation were, early in April last, transferred from the Leamington Local Board to the "Native Guano Company," which has been formed to work the A. B. C. process, patented by Messrs. Sillar & Wigner, of London. The rainfall is only partially separated from the sewage by surface drains. The effluent water is said to be perfectly free from smell when discharged into the river, even when the works are seen under unfavourable circumstances; but some samples, on being kept in a closely stoppered bottle, according to the *Mark Lane Express*, have a smell which is strongly suggestive of the nature of the source from which the water has been obtained. On the other hand, other samples, under precisely similar circumstances, were perfectly bright, and free from even the slightest smell.

The Castle Caverns, Guildford.—The Castle caverns are still closed. The *Surrey Standard* thinks it is a little strange that a party of archæologists who took the train at Guildford the other day in quest of objects of interest in the neighbourhood, neither halted at Rack's Close, nor, during the day, in their papers or speeches, made the slightest allusion to the excavations. It would be satisfactory, doubtless, adds our contemporary, to know the date of the formation of the caverns: that they are distinct from the castle, and that they had an origin independent of it, is pretty certain.

ARCHÆOLOGICAL EXCURSIONS.

The Somerset Archæological Society. — This society held its annual meeting this year at the ancient little town of Axbridge, making excursions to the villages and various objects of interest in the neighbourhood. The country comprised within this year's programme is one of the most beautiful districts of Somersetshire, and offers a wide field of research to the archæologist. The programme this season was of the usual character, comprising a museum, the reading of papers with discussion, and excursions. The general meeting was held in the town-hall, the president for the year, Mr. W. Long, in the chair. The Rev. W. A. Jones, the hon. sec., read the report; and, after some official business, the president read an able address, on the meetings of the society; the Mendip country and the explorations therein, the traces of prehistoric man; megalithic remains; and the traces of Roman occupation; and suggested further explorations. While treating of megalithic remains, he spoke of the stone circles and avenues, as well as barrows:—

"With respect to the stone circles and avenues at Stanton Drew [he said], I would merely submit to your consideration, whether we may not reasonably assign their origin to Phœnician influence reaching these shores through that energetic maritime people, the Veneti, who inhabited a portion of the coasts of Armorican Gaul; who were still carrying on a brisk trade with Britain in the time of Cæsar; and in whose district were the remarkable stone structures of Karnac and its neighbourhood. The traces of the Belgic occupation of this district are to be seen in the camps, barrows, circles, hut circles, trackways, and cattle enclosures which abound on the Mendip and neighbouring hills. Their extreme western boundary, the Wansdyke, may be very distinctly seen in many places between the Bathampton Camp above Bath, and Maesknoll above Keynsham, but from this point, in its supposed course either to Portishead or to the Clifton Down Camps, Mr. Scarth and I have sought for it in vain. It is probable that, although the use of bronze, both in the East and on the continent of Europe had prevailed for a considerable previous period, the Belgic race was the first which introduced the bronze age into Britain. Even in the time of Cæsar, bronze was an imported article ('Ære utuntur importato,' B. G., v. 12); and it is not likely that the Phœnicians, if they found it to their advantage to have settlements on these coasts, would allow the native population to possess any weapons of a more formidable character than their sling stones and arrow-heads of flint. Of this Belgic race, which drove westward, and reduced to slavery, the previous and long-headed occupants of this district, Dr. Thurnam, the great authority on the craniology of our early British races, says, 'The brachycephalous people or roundheads, who buried in the round barrows were more civilised than the dolicocephali (or long-headed race); and may be inferred to have brought with them the more common use, if not knowledge, of bronze. The exploration of their tombs, shows that burning the dead was with them the prevailing and fashionable, though not the exclusive, mode of burial; and the appearances are consistent with what we are told of the funerals of the Gauls (their supposed congeners) by Cæsar and Pomponius Mela. From the same source, or the appearances in the tombs, we should infer that they had advanced from the nomadic, hunting, and pastoral condition, to a more settled agricultural stage of culture; and that if they had not altogether abandoned the more barbarous customs of their ancestors, and in particular that of human sacrifice (which all history tells us, was at one time, everywhere prevalent) they had at least restricted them within narrow limits.' 'These British brachycephali of the bronze period,' Dr. Thurnam adds, 'are to be regarded as an offshoot through the Belgic Gauls, from the great brachycephalous stock of central and north-eastern Europe and Asia, in all the countries of which,—France, Switzerland, South Germany, Bohemia, Poland, Russia, and Finland,—the broad and short cranial type is still the prevailing one.' (Paper on the ancient British Barrows of Wiltshire and the adjoining counties, read at the opening of the Blackmore Museum, September, 1867.)

The Barrows upon the Mendip range, and which may be seen in clusters near Maesbury Castle; at Priddy, near the Castle of Comfort Inn, and on Blackdown, are not nearly so numerous or of such varied form, as those which are to be found on the Wiltshire downs around Abury and Stonehenge. They were the burial places of the more distinguished occupants of these hill tops during this Belgic period. The greater number of them were opened about fifty years ago by the Rev. John Skinner, rector of Camerton, near Bath. His manuscript account of their examination is in the library of the Bath Literary Institution, but it has been printed *in extenso* by the Rev. Mr. Scarth in the 16th volume of the Proceedings of the Archæological Institute. The interments were all indicative of the Belgic or bronze period, cremation having been practised in every case; and the few articles discovered with the burnt ashes consisted of bronze spear-heads, some amber beads, and some coarse clay cups. There appears to have been a considerable Belgic mining settlement at Charterhouse, which, from the articles discovered in it, must have been subsequently occupied by the British, who here worked the mines for their Roman masters.

I take this opportunity of commending to the attention of Somerset archæologists a remarkable and extensive collection of hut circles, which seems to have been hitherto unnoticed by them. It is on the slope of the northern barrier of Cleve Combe. Some of these circles are in the wood on the crest of the Combe, but the greater number are in the open space adjoining. In many instances the stone which has been dug out in forming them has been used on the surface to wall them round, so as to provide the occupants with a better protection against the weather than their wattled coverings alone could afford. One cannot traverse this ground without wishing to examine some of these circles with pick and shovel."

After the address was delivered and thanks voted for it, the Rev. W. Hunt, of Congresbury, read a paper on the Monuments of the Borough

of Uxbridge, and Mr. C. Pooley one on the Remains of an Old Cross found at West Harptree. In the afternoon the members visited the parish churches of Axbridge, Cheddar, and Rodney Stoke. At a *conversazione* in the evening, papers were also read, and on the following two days excursions were made to various places of nterest in the district.

The Wiltshire Archæological and Natural History Society.—The sixteenth annual meeting of this Society commenced at the New Hall, Chippenham. The president (Sir J. Awdry) occupied the chair, supported by a numerous body of the leading families of Chippenham and neighbourhood. The secretary (the Rev. A. C. Smith) read the report, and after the appointment of officers for the ensuing year, Sir J. Awdry delivered the inaugural address, in which he said that any one who read the first chapter of Genesis must be of opinion—be he Darwinian or not—that creation was a progressive thing, and that Scripture and geology both told them that man was the final work of his Creator. Whatever were found among the pyramids of Egypt, or in the rubbish heaps on the Danish coast, were historical chronicles, if they were anything, that man existed there. He combated the idea that it was impossible to believe anything except there was a contemporary narrative. They, on the other hand, possessed trustworthy monuments, arising, as it were, out of the swamps of the ocean, to confirm them in what many persons believed to be only a supposition. Such things were as historical as they could possibly be, but still it behoved them to be careful. The business of the meeting, he said, would include a paper on the pit dwellings near Salisbury. In the Blackmore Museum were a large number of curiosities obtained from the Wiltshire clay. Wiltshire possessed Stonehenge, which was so vast a work that it excited the admiration of all who viewed it, and he asked whether those things were not historical in regard to the works of man. After alluding to the geographical position of Wiltshire, the president particularly noticed the church at Bradford, and the many conflicting opinions concerning the building. He said it was evidently a piece of workmanship prior to the arrival of the Romans, while some persons put it down as a work coinciding with that of the eighth century. The Rev. Canon Jackson read a paper, announced as "A few Odds and Ends about the Town and Neighbourhood of Chippenham." The Rev. J. J. Daniel followed with a long paper on the town of Chippenham, during the great rebellion. At the conclusion of the meeting, the Rev. Mr. Barnwell drew attention to the church at Bradford, of which we have before now spoken, and suggested that the society should take the initiative and assist in preserving such an ancient edifice. He said the building had been visited by various architects, all of whom were unable to fix any date to the church. After inspecting the church the members met at the Angel Hotel, and dined together under the presidency of Sir John Awdry. At half-past seven a *conversazione* took place in the schoolroom, when papers were read by Mr. C. H. Talbot on "the Existing Structure of Lacock Abbey;" Mr. W. Cunnington, on "Iron Ore and Iron Working;" and Mr. Goldney, M.P., on "Corsham." A temporary museum was opened in the room at the new hall, the articles for exhibition being lent by the members and friends of the Association. Next day the proceedings commenced by the party assembling at the New Hall, Chippenham, whence they proceeded on a visit to Lacock Abbey, where the company inspected the antiquities of the Abbey Church, &c., and then started for Corsham Court. From Corsham they returned, about 50 or 60 in number, to Castle Combe, where they were entertained at luncheon, provided by Mr. Lowndes. The church was visited; and then the whole party climbed the steep hills with which Castle Combe is environed, and drove on to Grittleton. Here Sir John Neeld entertained them with tea and coffee, and other refreshments; and then the pictures and statues and other works of art were examined by the large number of visitors who spread themselves over the suites of rooms and galleries. The gardens, and of course the church, were visited; and then the archæologists drove back through Kington St. Michael to Chippenham, where the meeting was announced to commence at 8 p.m.; and arrangements had been made for the delivery of a paper by Mr. E. T. Stevens, on the "Ancient Pit Dwellings in Salisbury;" a paper by the Rev. E. C. Awdry, on "Monumental Brasses in some of the Churches near Chippenham;" a paper by the Rev. W. H. Jones, F.S.A., on "Some Names of English Occupiers in the time of Edward the Confessor, still preserved in those of Wiltshire Persons or Places;" a paper by Mr. H. A. Merewether, on "The Head Gear of the Ancients." Next day (Thursday), the excursion took the following route, viz.: Chippenham, by Langley Burrell Church to Draycot, by Sutton Benger and Christian Malford to Clack, Bradenstoke Abbey (where the Society were invited to luncheon by Mr. Goldney), by Foxham, Cadnam Manor House, and the Tythertons, to Chippenham.

NEW BOROUGH LUNATIC ASYLUM, IPSWICH.

THIS new establishment, though not finished, has assumed its outward form. The site is at Felixstow, and consists of two fields and a plantation, forming part of the Rose Hill farm, lying between the Foxall and Felixstow roads, and containing rather more than fifty acres. The situation is high and healthy, and the distance from the town convenient. The committee appointed the town surveyor, Mr. W. P. Ribbans, as the architect.

Mr. Ribbans accepted an offer of the Commissioners in Lunacy to allow him to examine plans they had approved of other asylums which had recently been erected, but he was informed that the Commissioners did not consider they had yet got an asylum which could be put forward as a model; and Mr. Ribbans, it is said, did not find the plans he saw of any great use to him. He prepared plans of a building calculated to accommodate about 130 patients, and these were sent to the Lunacy Commissioners for their approval. The Commissioners suggested some alterations, the principal being in the arrangement of the infirmary, which the architect had proposed to build two stories high, whilst the Commissioners suggested that it should be enlarged, and should be entirely on the ground floor. These alterations were made, increasing the estimate of the cost from 13,500*l.* to 16,500*l.* The altered plans were approved by the Commissioners, and tenders advertised for, the result being that that of Mr. Edward Gibbons, of 18,950*l.*, was accepted at the end of April, 1868. Mr. E. Catchpole was appointed clerk of the works, he having acted in a similar capacity during the erection of the town-hall, and the work was at once commenced, and has now so far progressed as to be externally nearly completed, though it will be several months (the contract gives till next June) before the building will be entirely out of the contractor's hands.

The entrance to the asylum is from the Foxhall-road, from which the building is recessed about 120 yards, but the principal front is that which faces to the south, and is seen from the racecourse and the Felixstow-road. The asylum, says the *Suffolk Chronicle*, in describing it, is a larger building than we should have thought would have been required; and from the nature of the arrangement of the asylum proper—a three-storied building, the main part only one room in width—it appears even larger than it really is. The length of the south front is 398 ft. of the high building, and then on either side is a low one-storied building—the infirmaries—extending 64 ft. further, so that the total length of the building is 526 ft. The material used in its construction is red brick, with white brick dressings, and here and there—as at the main entrance, and the bow-windows on either side—further relief is given by white stone; the roofs are slated, and the sky-line of the centre block is broken by an iron cresting. The centre of the south front is formed by the dining-hall and the chapel above it. These rooms are lighted by larger windows than the dormitories and corridors on either side; they project beyond the general line of front, but not abruptly so, and at each end of the high part of the building the day-rooms—large, bright, and pleasant rooms, built in the form of bays,—are brought forward; and above these the towers, containing the ventilating-shafts, upon which a judicious amount of ornament has been bestowed, are seen. The windows in the first two floors have semicircular heads of white brick, and in the upper floor elliptical.

The arrangements, dimensions of the rooms, &c., are exactly similar on each side of the house. On the ground floor a corridor, 12 ft. wide, runs the whole length of the wing; it is lighted by windows looking southward, and from it open nine rooms, each intended for a patient, and each 7 ft. 2 in. by 9 ft., besides attendants' rooms of rather larger dimensions, one of which is at the end of the corridor and next a dormitory, 18 ft. by 22 ft., in which several patients will sleep. Opposite the dormitory is the day-room of the patients located on this floor, 32 ft. by 20 ft., a light, cheerful room, with a southern aspect. The corridors will be used by the patients in the day-time as well as the day-rooms. Beyond the day-room on the ground floor is the infirmary, with a similar corridor with three single bedrooms, 11 ft. by 9 ft., and a dormitory, as well as a day-room somewhat smaller than that for ordinary patients.

The first floor is exactly similar in its arrangements to the ground floor, except that it ends with a day-room, the infirmary being only one story high. A few more steps lead to the chapel, a noble room of the same length and breadth as the dining-room, over which it is, and 2 ft. higher, lighted by seven windows, from which there is an extensive view.

Care has been taken that the wall which encloses the airing-grounds should not appear to be high and prison-like, and from the windows of the ground-floor it looks as if one could jump it with ease, but in reality it is a 7-ft. wall, the ground having been excavated close by it, so as to form a gravel walk some 3 ft. below the level of the rest of the garden. The ground slopes towards the east, so that on the female side of the house there will be a terrace, with steps leading to the garden.

The carpenter's and tailor's shops and the laundry are to be connected by covered ways with the main building. The drainage is easily carried off the premises, owing to the natural fall of the land. The gas-fittings and water-piping are being done by Messrs. D. & E. Haggar.

NOTES FROM THE SOUTH OF IRELAND.

THE new cathedral to be erected in Cork from a design by Sir John Benson, will be one of large proportions, and will show variety in its treatment. The ridge of both transept and nave will be 80 ft., crossing each other at an equal elevation. The transept will be 114 ft. in length, and from east to west within the walls will be about 237 ft. The transept gable will be of a richly ornamental character; that on the south side will have a porch deeply moulded with a carved tympanum, the triangle over the archway being perforated for effect. Flanked at either side with double aisles, the choir will be seen, those aisles constituting chapels, this part of the building being joined to the transept by a flying buttress. Sacristies below, square, and securely built, will give the air of solidity to the adjoining slighter superstructure. To the west the view will show the south aisle and clearstory, and a tower, which, to the top of the parapet, is 157 ft., but, on completion, with finished spire, will be about 280 ft. A rich confusion of pillars will be presented to the sight on entering the transept door, five altars standing in the centre, others forming the termini of the double aisles, running along and forming part of the choir. In either end of the building will be large traceried windows, and above a long arcade resting on stone columns, around which will be a cluster of parasitical marble pillars, a triforium will rise. Over its arches will be the clearstory window; three stories will be then presented. The fascia of the nave will be open woodwork, suitable for coloured decoration. A groined roof of stone will cover the aisle. The choir beyond the transept will differ from the nave in some particulars, the floor being raised by a series of gradations to give effect to the altar; the triforium is cut off in this part, leaving the main arcade to possess the most height. These provisions are designed for the purpose of enhancing the internal appearance of the cathedral. The structure will partake of the Geometric style.

The town-council of the "Marble City," Kilkenny, which boasts of "fire without smoke, water without mud, and streets paved with marble," have at last resolved on lighting the old historical town with gas. Kilkenny has been long in the dark.

In Waterford a very pretty quarrel is going on between the Harbour Board and the Corporation, as to who has the right to seize the water-bailiff's fees.

The Sligo and Ballaghaderreen Junction Railway works are being proceeded with, and it is hoped it will open up the trade and facilitate the traffic due west.

In Limerick the Corkanree Embankment is nearly finished. The city surveyor is pushing on the works energetically. In a sanitary point the works will be an advantage to the city. It is intended to have its sides planted with ornamental shrubs, making the work at the same time ornamental as well as useful.

An infants' school is in course of erection by a society of the Sisters of Mercy, in Accommodation-road, Carlow.

In Kinsale, in Cork, for ten weeks there has been a dead-lock in the water supply. The streets were torn up during this time in laying down mains, but in the meantime the inhabitants are forced to resort to the surrounding districts to seek water. There has been bungling or miscalculation somewhere in sinking the reservoirs.

Measures are about being adopted in Cork to obtain a training-ship and a capitation grant from the Government for the purpose of establishing a Naval Industrial School for Destitute Boys in the harbour.

The inauguration of the Royal Docks will take place on the 28th instant; the Lord-Lieutenant has accepted the invitation to a civic banquet on the occasion.

WATER SUPPLY.

THERE is a population of 30,000 at St. Helier, Jersey, who are dependent on any chance supply of water for ordinary or exceptional use. There are a few pumps and a few wells; but the population generally have to depend entirely on water-butts. The *Jersey Times* says,—

"The long drought of last summer ought, if anything can, to arouse us to the necessity of water storage. Neighbours quarrelled and fought for water, and the police magistrate was frequently engaged in investigating assaults arising out of the joint users of the same pump. The fear was before the eyes of large numbers of the people that the rain supply being exhausted, the wells would fail next, and they might actually go without water—a fate infinitely worse than deprivation of bread."

Even were the well-water more plentiful, it is hard, and otherwise unsuitable for domestic purposes. The only alternative, therefore, is to provide a reservoir for the storage of the water supplied by the mountain streams, and that which descends as rain. To carry out this scheme, a company has been formed, and, since there seem to be no engineering difficulties in the way, and as the want of a supply of water is beyond all doubt, there is every prospect, if the works are carried out, not only that a great public good will be done, but that a fair dividend will be paid to the shareholders. St. Helier is overlooked on several sides by hills, and among them it is suggested to construct a large reservoir from which the water will descend by its own gravity to all parts of the town. The company (a limited liability), is already incorporated, and of the 5,000 shares, at 10*l.* each, which it is proposed to issue, 2,000, it is stated, have been taken up, leaving 3,000 to be disposed of. The directors feel confident that a dividend of 10 per cent. per annum may be relied on. A contract has been entered into with Messrs. C. W. Harrison, G. Redgrave, and R. Robson, of London, for the completion of the works for 48,000*l.*

The water supply of Dover engages the attention of a committee to whom the question has been specially relegated. Experiment has disclosed the low levels to be the seat of an enormous waste complained of. Efforts should be made to discover the cause of waste in some systematic manner.

THE TRADES MOVEMENT.

London Carpenters and Strike of Blackburn Joiners.—A representative meeting of the carpenters and joiners of London has been held, Mr. George Potter in the chair, to consider the propriety of lending pecuniary assistance to the joiners of Blackburn and Darwen in their existing strike for a reduction in the hours of labour. Mr. Sterndale, a delegate from Blackburn, explained the origin of the strike, which arose out of a demand of the joiners to reduce the hours of labour from 54 to 49. The men declined to arbitrate the question, because the hours they asked for had been granted to other trades. The General Union of Carpenters had already spent 1,200*l.* on the strike. It was unanimously resolved:—

"That in the opinion of this meeting the short-time movement is the necessity of the day, and that its adoption would tend to the intellectual, physical, and moral improvement of the working classes; that this meeting, therefore, views with satisfaction the efforts of the Blackburn joiners to reduce their hours of labour, and tenders them its warmest sympathy in their struggle."

A committee was appointed to receive the subscriptions of the London carpenters, and forward the same to Blackburn weekly. This strike, however, is now said to be nearly settled by a compromise.

Masons' Strike at Sheffield.—A meeting between master builders and operatives, to endeavour to settle the strike, has been held in order that representatives from each body might discuss the questions at issue. The mayor presided. After some little discussion upon the rules in question, the mayor proposed that the matter should be postponed till January, when the questions then in dispute should be decided by arbitration, the masters meanwhile to withdraw the notices they had given, and open their workshops to the men. This proposition was eventually agreed to, subject to the approval of the general body of masters and men.

Fruits of a Strike.—The secretary of the Operative Spinners' Association at Preston has issued a statement to the members. The contract entered into between the association and the members out of employment will expire in four weeks, by which time the society will have expended, since February last, over 6,000*l.* The association has now discovered that "those who most advocated resistance were the very first to desert the men they advised to leave their work."

Strike at Dundalk.—There is a strike of the masons and bricklayers employed in the construction of the Dundalk and Greenore Railway. They ask an increase of wages from 24*s.* to 26*s.* a week, accompanied by a decrease of the hours of labour. A strike of the labourers employed on the same works occurred recently, but ended in a return to work on the old terms.

Strike at Stettin.—In Stettin, where a short time ago the corn-carriers left their work demanding a rise of wages, and where the cabinet-makers are still on strike, the carpenters, to the number of about 700, turned out on the 30th August.

SEWAGE UTILIZATION AND THE ESSEX SCHEME.

AT the recent meeting of the British Association at Exeter, apropos of the grants for various purposes, Sir William Tite, with reference to the 50*l.* granted to Mr. Grantham for the treatment of the utilization of sewage, said he thought that there was a large company in existence under the superintendence of Mr. Hope, and that they were doing all that was possible in the inquiry, without the necessity of the Association spending money in following it out. He did not deny the importance of the question, but simply wished an explanation of why the 50*l.* were granted to Mr. Grantham, when the question was in the hands of a powerful company, with large means, and who were doing their best to show the advantage of the utilization of the sewage.

Professor Rankine said it was well known that the company was a large, powerful, and interesting one; but he wished to ask whether the company was established for inquiry into every conceivable way of treating sewage, or only to carry out a particular plan.

Sir William Tite said he believed it was for both. The scheme of the company was that, at the outfall of the sewage on the Essex side, a large channel should be cut down to the Maplin sands. It was said, and probably in truth, that if the sewage was poured over these sands, and the sands inclosed, a large and valuable tract of land would be recovered. The question was, was it true that sewage water possessed that fertilizing quality? That, of necessity, was the nature of the company: they had taken a farm, and were doing their best in every possible way to show that the utilization of sewage was an advantageous process. That being so, why should they take it up at the expense of the British Association?

Mr. Vignoles said it was the feeling in Section G that, however useful might be the efforts of the company, a more scientific and independent inquiry by the Association would be more satisfactory.

Dr. Farr said the Chemical Section at Norwich considered it very important that this committee should be appointed. The question of sewage utilization was of vital interest, both in an economical point of view, and as regards the public health; and they thought it very desirable that a scientific committee should investigate the subject, entirely unembarrassed, as Mr. Hope might perhaps be, by the pecuniary or other concerns of the company, or such considerations as might arise in the Metropolitan Board, of which Sir W. Tite was so distinguished a member. The committee took the question up in a purely scientific point of view, and 50*l.* could not be better employed.

Sir W. Tite said, after the exp'anation, he withdrew his objection.

We take this opportunity of drawing the attention of our readers to the voluminous and excellent reports of the proceedings of the Association given in *Scientific Opinion*, from which we here quote. These reports are far more complete than any others we have seen.

RAILWAY MATTERS.

THE promoters of a system of "Universal Penny Railways" have matured, and now submit for public consideration, a scheme by which, as they believe, the so-called "impossibility" of penny railways may be overcome. The basis of the plan is, of course, the assumption of all the railways by the State. By a number of economical changes in the management of the traffic,—for example, by doing away with tickets in the case of third-class passengers, who constitute two-thirds of the entire bulk of travellers by railways, and by the institution of "stop stations," the projectors of the scheme expect to produce results of the most startling character. In the "People's Class" passengers will be conveyed from London to Holyhead for 1*s.* 6*d.*; from London to Edinburgh for 1*s.* 11*d.* At a "stop station" the traveller will leave the train, and if he desires to go further will go through an "on room," and pay a toll of 1*d.* to the next station. By the disuse of tickets, &c., the promoters hope to save an enormous sum.

An embankment on the Oxford and Wolverhampton Railway, at Dudley, has been partially destroyed by a singular accident. The line is constructed over a bed of coal, which in one case comes to the surface. Owing to some cause the coal has ignited, and is still smouldering and the accumulation of water on the line is greater than can be carried off by the ordinary channels.

WORKING-CLASS DWELLINGS.

The Artisans and Labourers' Dwellings Act.—It appears that some of the metropolitan vestries are undecided as to the course of procedure they should adopt under Mr. Torrens's Act. At a recent meeting of St. Luke's vestry, the medical officer reported, under the Act, that certain huts or shanties in Wood's-place, Chequers-alley, were unfit for human habitation; and the vestry clerk remarked that the vestry was empowered to shut up the premises and keep them closed until they were put in a proper state of repair. Thereupon it was pointed out by several vestrymen that if they carried out the provisions of the Act they must employ several additional officers; and that if they put the premises into a proper state of repair, an expensive machinery would have to be put in force. The clerk, however, explained that if the vestry failed to carry out the provisions of the Act, the Home Secretary would cause them to be carried into effect, and charge the expenditure to the vestry; and Mr. Adams remarked that if, after the receipt of the medical officer's report, an outbreak of fever occurred in the neighbourhood, the vestry would most certainly be held responsible to a great extent. Some of the vestrymen were in favour of proceeding under the Nuisances Removal Act; and Mr. Daniel suggested that the matter should be allowed to stand over for a month, and that meanwhile each member of the vestry should be furnished with a copy of the Act, so as to become master of its clauses. After a long discussion, the matter was referred to the sanitary committee, and copies of the Act were ordered for the vestrymen. In the meantime, the huts or shanties in Wood's-place, Chequers-alley, remain "unfit for human habitation."

The London Labourers' Dwellings Society (Limited).—The report of the directors stated that they had completed the purchase of twenty-three leasehold houses in Watson's-place, Kingsland-road, for 5,020*l.* The whole of the property had been put into thorough repair, which necessitated the temporary removal of most of the tenants in succession, and only the most respectable were allowed to return. The new block of buildings at Vauxhall was ready for occupation

in May, and out of eighteen tenements sixteen had been occupied. They consisted of two rooms, each with a scullery in common to each three tenements, and the rent ranged from 4s. 9d. to 5s. 6d. per week. The directors continued to allow one week's rent in the half-year to all those weekly tenants who paid quite regularly, and who also kept their houses in good order. Upon the whole, the directors were quite satisfied with the practical working of the plan. The total net rents had amounted to 982*l.*, and the net profit to 884*l.* which was sufficient to pay the usual dividend of 5 per cent. per annum, free of income-tax. The benevolent fund was 500*l.*, invested in shares of the society, and the annual dividends were applied to support charitable and useful institutions in the localities. It appeared there were twelve distinct properties, containing 292 tenements, purchased for 29,276*l.*; solicitor, 446*l.*; repairs, 2,416*l.*; buildings, 9,300*l.*; interest on cost, 300*l.*; surveyor, 129*l.*; sundries, 62*l.*—total, 41,930*l.*

RE NEW OFFICES FOR THE POPLAR DISTRICT BOARD OF WORKS.

SIR,—In reply to the *ex parte* statement contained in your last impression in reference to the stoppage of these works, we beg to inform you that it is entirely incorrect, likely to mislead the public, and seriously to injure the contractors.

All the timber and other materials hitherto supplied on the ground have been approved by the architects to the Board of Works, and (contrary in our opinion to the contract between our clients Messrs. Baker & Constable and the Poplar Board of Work) Messrs. Hill & Fletcher and Messrs. Harston, the architects to the Board, have refused them a certificate for a portion of the contract sum due to them for work done and materials supplied until the *whole* of the timber required for the completion of these works is put upon the ground; and, as we deem this course to be utterly illegal, we trust to your sense of justice to insert this letter in the next number of your journal.—We remain, &c. NOON & DAVIES (Solicitors).

JOSIAH MASON'S ORPHANAGE AND ALMSHOUSES.

THE reading public have been lately informed far and wide of a munificent act of thoughtful charity on the part of Mr. Josiah Mason, of Birmingham, an act involving the appropriation of as large a sum of money as that devoted by Mr. Peabody to the improvement (more or less) of the condition of the poor of London; that this was determined on and commenced two years before the American philanthropist announced his first donation; that the two donors were born within a few days of each other, commenced life in the humblest manner, and were the builders of their own great fortunes. It seems that as far back as 1858 Mr. Mason established in the village of Erdington, about four miles from Birmingham, an Orphanage for the reception of 30, and afterwards of 50 children, and this institution he maintained entirely at his own cost. Desiring to engage in some large work of charity, he resolved, in the first place, to extend the Orphanage on its original site. By degrees, however, this plan was expanded, and Mr. Mason determined to erect a new Orphanage in another part of Erdington, for the reception of 300 children, two-thirds of these being girls, and one-third boys.

The new building in Bell-lane, Erdington, of which we now give a view, was commenced in 1860. Owing, however, to the endowment consisting of land, it was necessary that, in order to validate the gift, the donor should live twelve months after the deed had been registered, and, therefore, no public announcement was made in reference to the charity. The statutory period expired in July; and then, without ceremony, Mr. Mason handed his magnificent gift of 260,000*l.* to the appointed trustees, thus divesting himself of all control over the property, and devoting it formally to public uses.

The trust consists at present of seven gentlemen, residents in or near Birmingham. At the death of Mr. Mason the number of trustees is to be raised to fourteen, of whom one-half are to be always elected by the town council of Birmingham, either from its own body or from other persons. It is provided that the trustees shall always be laymen and Protestants, and any of them making default in either condition thereby becomes excluded from the trust. The property in the endowment and the general management of the estates and the institution are devolved by the deed immediately upon the trustees, but during his life Mr. Mason retains the right of acting as a member of the managing body, and of taking the general oversight of the charity, which is to be called "Josiah Mason's Orphanage and Almshouses."

The endowments of the Orphanage, as we understand, consist of about 1,032 acres of freehold land. Of this about 220 acres, almost all of it valuable building land (and including Mr. Mason's own house and grounds), are in the village of Erdington; and the rest is in the parishes of Northfield, Bickenhill, Feckenham, Sutton Coldfield, and other places in the counties of Warwick and Worcester. About two acres and a half consist of building land in the heart of the town of Birmingham, mostly covered with buildings, and of increasing value. One of these properties, recently erected, is let at 1,500*l.* a year, and it is stated the total rental of the Orphanage estates cannot be much less than 10,000*l.* a year even now. In a very few years this amount will probably be doubled by the increasing value of the endowments, and in view of this contingency the trustees are directed to apply any surplus funds, when these are sufficient, to the erection of other orphanages, in accordance with the general scope of the trust deed.

A few of the clauses of the trust deed will show our readers the plan of education and religious instruction to be followed in the Orphanage:—

"The children who are admitted into the Orphanage shall be lodged, clothed, fed, maintained, educated, and brought up gratuitously, at the exclusive cost of the Orphanage income.

"Proper arrangements shall be made by the trustees for the instruction of the children, having due regard to their respective ages and capacities in reading, writing, spelling, English grammar, arithmetic, geography, and history, and such other subjects of general and useful knowledge as may be, from time to time, directed or authorised by the trustees, subject to the condition which the said Josiah Mason doth hereby declare to be fundamental, that no instruction in any language or grammar other than in the English language and English grammar shall be given to the children in the said Orphanage.

"And it is hereby declared to be the express wish and direction of the founder, that all the children shall be brought up in habits of industry, and that, as far as practicable, the girls be instructed in sewing, baking, cooking, washing, mangling, and in all ordinary household and domestic duties, and in other useful knowledge, with a view to their being fitted to become useful members of society in those positions in life to which it may please God to call them, and which He may give them talents worthily to fulfil.

"And, under the deep conviction that the fear of Almighty God is the beginning of all true wisdom, the said Josiah Mason doth hereby declare it to be his special desire and direction that the children shall be carefully instructed in the knowledge of the Holy Scriptures, and taught to love, reverence, and obey the doctrines and precepts therein graciously revealed, and, through the Divine blessing upon the labours of those engaged in their instruction, the words of the Apostle may be addressed with truth to every child who shall have been brought up in the Orphanage, 'From a child thou hast known the Holy Scriptures, which are able to make thee wise unto salvation through faith which is in Christ Jesus;' provided always that all the religious instruction given in the Orphanage shall be confined to the Holy Scriptures in the authorized English version, and to the truths therein contained, and that no catechisms, formularies, or articles of faith, whether of the United Church of England and Ireland, as by law established, or of any other body of professing Christians, shall be taught to the children.

"The trustees shall make such provision as they shall, from time to time, think fit for the assembling of the children for divine worship in the institution, having regard, as far as practicable, to the earnest desire of the founder, that the children may be trained up as simple and sincere followers of the Lord Jesus Christ, without reference to sectarian distinctions and prejudices; and it is hereby declared that the trustees shall, out of the income of the Orphanage, expend such sum as shall from time to time be, in their judgment, necessary to provide for each orphan, on leaving the asylum, a sufficient outfit in clothes, in the discretion of the said trustees, together with a Bible, and the said trustees may also pay such sum as an apprentice fee as they may, in their discretion, think fit."

The almshouses in the village of Erdington are intended for the reception of forty-six female inmates; twenty only have been admitted during the past ten years; the building which formerly served as an orphanage is now being converted to accommodate the twenty-six additional aged women. These almshouses and the new Orphanage are at some distance apart, and form distinct institutions, the latter standing in its own grounds of thirteen acres in extent. The aged women are received at the discretion of the founder. The admission of children to the Orphanage is controlled by one condition only, "that every child shall be under the age of nine and the legitimate child of poor parents both then dead." There is no other condition whatever, neither of position, country, nor religious persuasion. The children remain in the Orphanage, if boys until they are fourteen, or by special permission a twelvemonth longer; and if girls, until they are eighteen years of age. Provision is also made for girls willing to enter service at the Orphanage "with the *bonâ fide* intention of becoming teachers, nurses, or assistants, either in the Orphanage or in other like institution."

The view we give of the Orphanage shows on the left the south-west front, and on the right the south-east front. The building was designed by Mr. J. R. Botham, architect, but, through circumstances, was not carried out by him, as we understand, to completion. It is of brick, with stone dressing, and in style may be called Lombardic. The three towers which give it character (two only appear in the view) are made to assist in the ventilation of the establishment, and receive the smoke from all the fireplaces.

On the ground-floor, at the end of the south-west front (left wing), is the library, 36 ft. by 30 ft. 6 in., at the back of which is the chapel, 50 ft. by 30 ft. 6 in.; between the two projecting wings of this front are six private rooms for offices, each 20 ft. by 14 ft. 6 in., and the infants' nursery, 30 ft. by 20 ft.; at the angle of the building (right wing) is the infants' schoolroom, 36 ft. by 30 ft. 6 in. Along the south-east front are two storerooms, each 23 ft. by 18 ft.; the officers' dining-room, 23 ft. by 18 ft.; and the dining-hall, 70 ft. by 23 ft. Behind these are the kitchen, 61 ft. 9 in. by 30 ft.; and the laundry, 52 ft. by 30 ft.; together with the stores, pantries, and servants' offices.

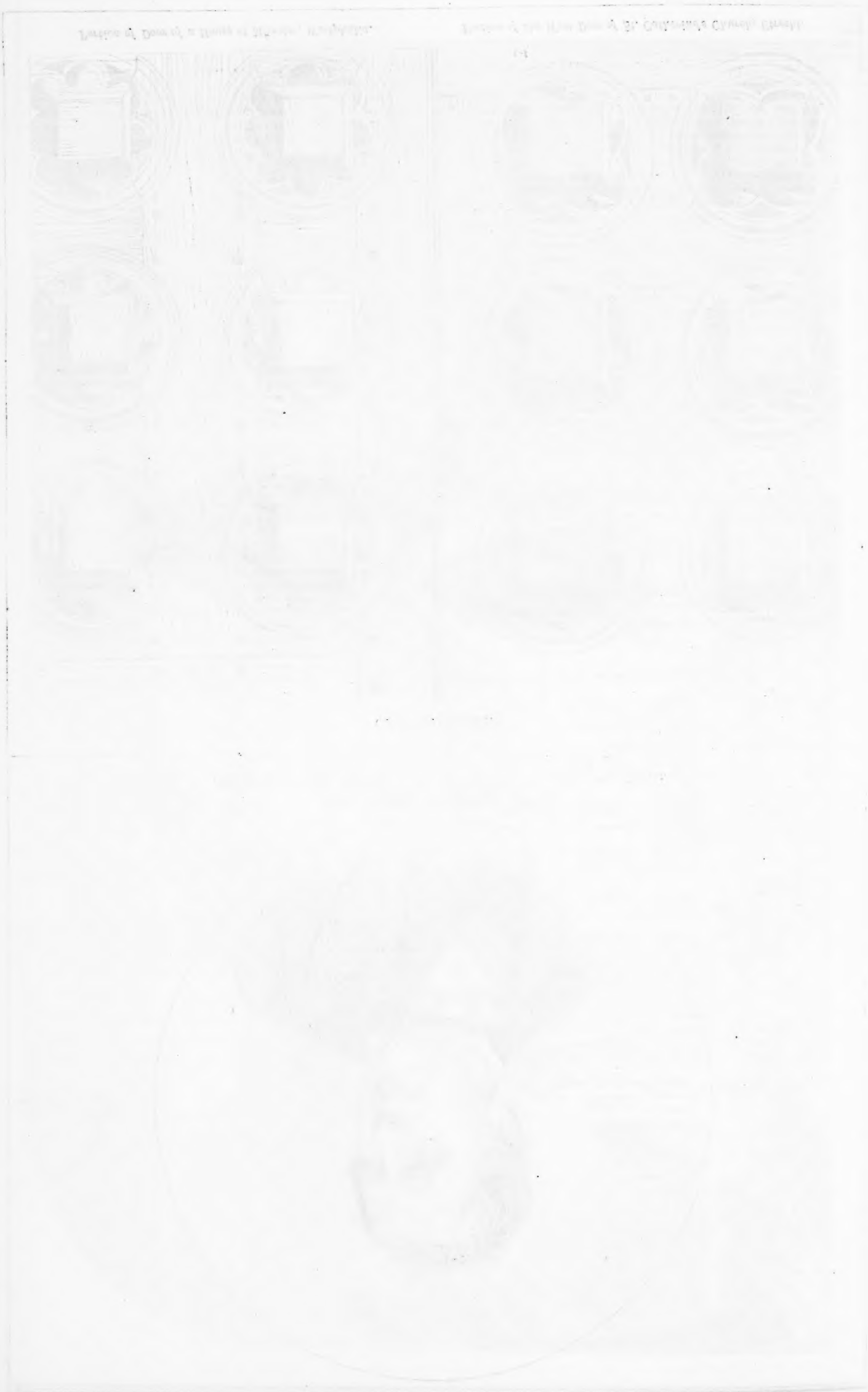
On the one-pair floor, over the library, is the infirmary, 46 ft. by 30 ft. 6 in.; eight bedrooms, each 14 ft. 6 in. by 13 ft. 6 in., over private rooms; girls' sewing-room, 36 ft. by 30 ft. 6 in., over infants' schoolroom; three class-rooms, each 23 ft. by 18 ft., over stores and officers' dining-room; and schoolroom over dining-hall, 70 ft. by 23 ft. Over the kitchen are two lavatories, each 56 ft. by 14 ft. 6 in.; and above the laundry is a large storeroom, 52 ft. by 30 ft. Over some of the offices at the back is a girls' playroom, 38 ft. by 16 ft.

The two-pair floor is occupied by the dormitories.

The basement under the whole of the south-east front is appropriated to a covered playground.

In the various accounts published, the cost of the building is given as 60,000*l.* We are enabled, however, to say that this can scarcely be correct unless indeed there was much unwise expenditure; as, according to a carefully prepared estimate made by an experienced surveyor, it would not have exceeded 33,200*l.*, including fence walls and gates, had the work been executed by a builder in the usual way. Mr. Mason, it should be mentioned, was his own builder.

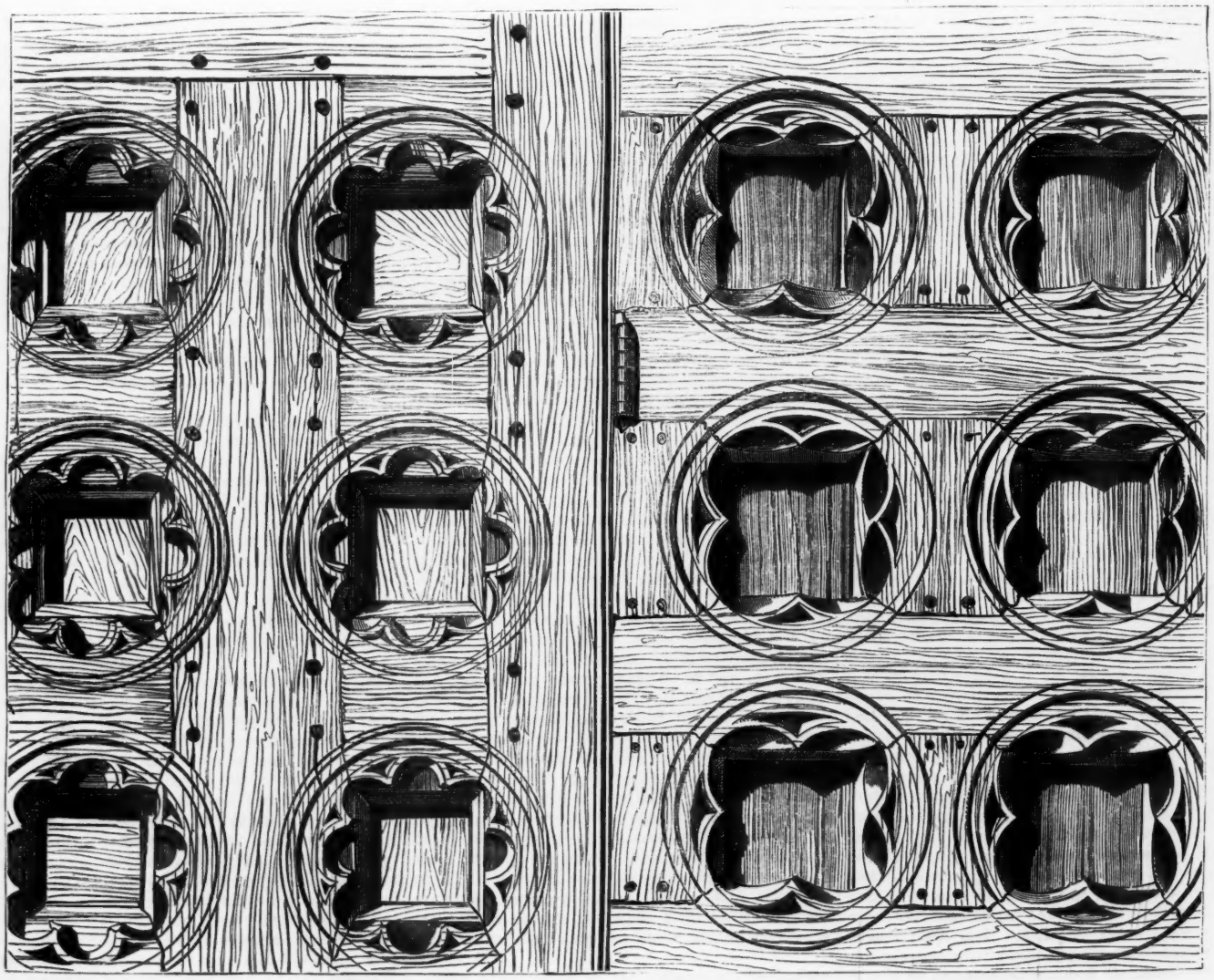
The career of the admirable founder of this great charity has already been sketched in several journals. We must content ourselves with a very brief allusion to a few points of it. How unfurnished he was at starting with the good things of this life, is shown by the statement that he commenced it by selling rolls and cakes about the streets. Working his way, we find him in 1823 (when he was twenty-eight), engaged in the manufacture of split key-rings in Birmingham, and commencing the foundation of his present large fortune. All the world knows Perry's pens and Elkington's electro-plating, but until this orphanage was talked of only a very few persons were aware that these titles might be with equal justice Mason's pens and Mason's electro-plating; in the one case his ingenuity and skill, and in the other his spirit of enterprise and his capital having placed these matters where they are. Join to these undertakings some successful copper works at Pembrey, and it will be unnecessary to look for other sources of his wealth, part of which he is now spending with a noble motive.



MR. JAMES PENNETHORNE,

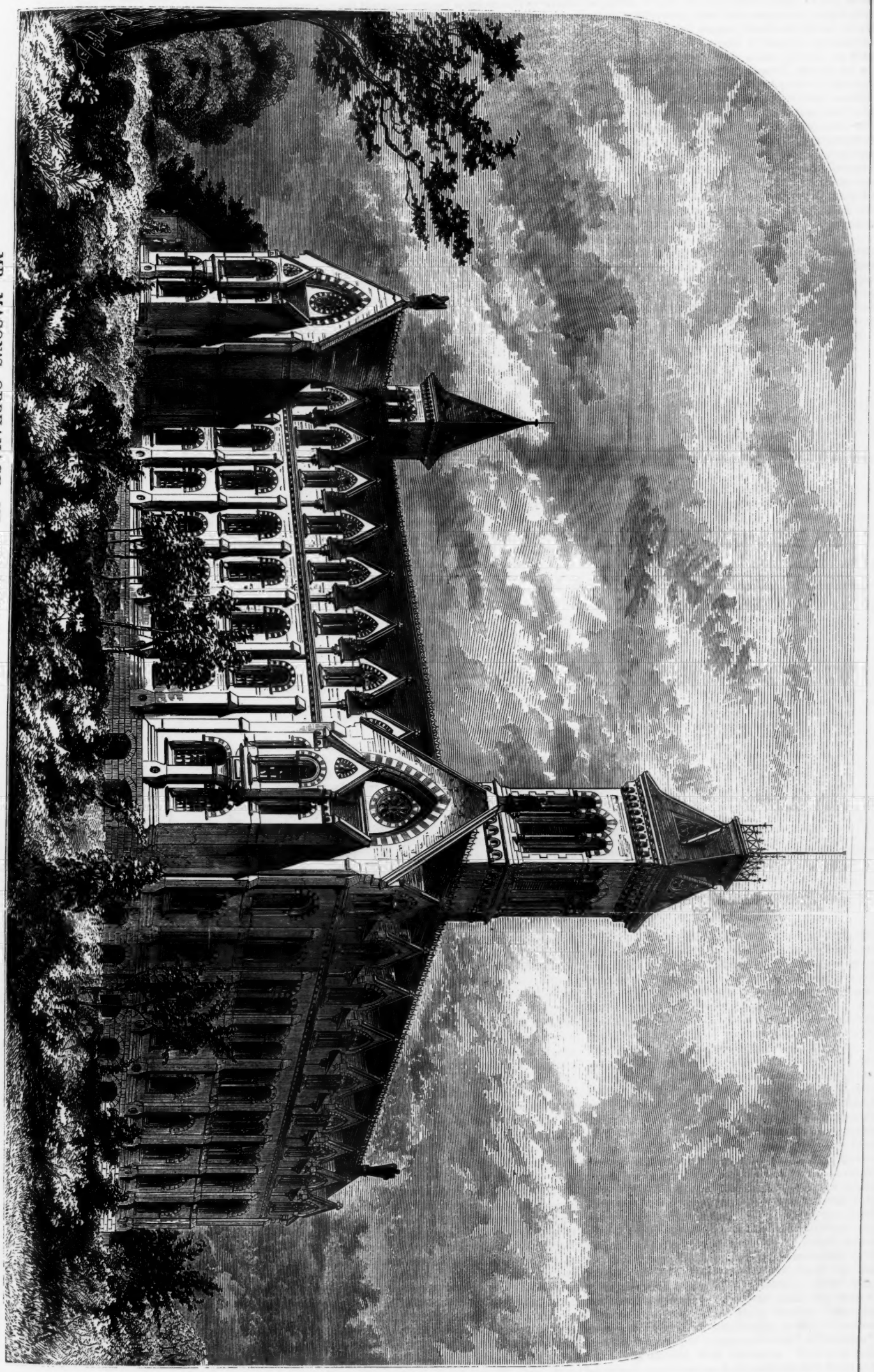
Architect of the New Buildings for the London University, Burlington Gardens.

CARVED DOORS.



Portion of Door of a House at Münster, Westphalia.

Portion of the West Door of St. Catherine's Church, Utrecht.



MR. MASON'S ORPHANAGE, IN ERDINGTON, NEAR BIRMINGHAM.—DESIGNED BY MR. BOTHAM, ARCHITECT.

WORTHING SEA-DEFENCES COMPETITION.

SIR,—To show the *fair* way in which the competitors in this affair have been treated, I beg to forward you the following extracts from the local press.

In the *Brighton Daily News* of September 13 appears the following:—

"Among the schemes which involve the least expenditure, is one proposed by the Board's surveyor, Mr. Johnson, which is very simple, but, we think, would prove effective if carried out. He suggests the erection of twenty four groynes, and a breastwork 1,300 ft. in length. . . . Mr. Johnson was, we believe, engaged in the construction of the sea defences at West Worthing. . . . The Board will hold a meeting this evening, when a motion will be made respecting the plans; but we are not able to state whether one of them will be decided on at this meeting."

In the next day's impression of the same journal appears the following:—

"A meeting of the Local Board was held in the Town-hall last evening, when the plan for the sea-defence of the Lancing-road was decided on. Mr. Patching said they had met together to decide upon a very important question. . . . He proposed that the Board adopt the plan bearing the motto, 'Resisto Oceanus.' . . . Mr. Smith said by some means it had been made known who were the owners of some of the plans which had been submitted. He regretted this, as it was a secret matter, but he did not believe it was mentioned by any member of the Board. It should be mentioned that the plan selected proposes the erection of twenty-four groynes and 1,300 ft. of breastwork."

Is it just, I ask, after such a flagrant breach of the usual rules in competition, to thus award the premium, and trifle with the valuable time of professional men? R. S.

SIR,—Would you kindly insert in your next issue, that the plans selected by the Worthing Local Board and their consulting engineer for the above works, was that bearing the motto, "Resisto Oceanus," Mr. C. W. Johnson, Town Surveyor, Worthing; and the plan under the motto, "Desideratum," Mr. R. Blaker, Builder, Worthing, was the second best.

C. W. JOHNSON, Town Surveyor.

COTTAGE HOSPITALS.

A COTTAGE HOSPITAL is about to be established in Ashford, Kent, at the cost of Sir Edward Hoare, bart., and other influential residents, to provide for the treatment of the poor, during illness, as nearly as possible with the surroundings of their own cottage home, but with better sanitary appliances, more skilful nursing, and more liberal diets than can be obtained by them under ordinary circumstances. Some cottages and other property in Ashford have been taken for the purpose, and plans prepared by Mr. Thomas Henry Watson, of London, for the necessary alterations to carry out the above objects. The alterations proposed are not considerable. Mr. Watson reported that it is desirable in such works to keep constantly in mind the importance of not destroying the "cottage style" of the building, and of maintaining the homely feeling of the poor when treated in small rooms, instead of in the large wards of county or metropolitan hospitals. Good ventilation and supervision, together with separation of the sexes, are indispensable. The works are to be carried out under the direction of Mr. Wm. King, of Ashford, as local superintendent.

A WORKMAN ON THE TRADE-UNION CONGRESS.

SIR,—It is said, and with some truth, that this is an age of congresses; and, no doubt, all evils which affect society would be eradicated if the resolutions passed at the meetings could be carried out. I read with some interest the report in the *Builder* on the late Trade-union Congress; and as I dissent from the canons of trade-unionism, and believe that heterodoxy in relation to that question is the best course, I wish, sir, with your permission, to give in the columns of the *Builder* my reasons, and to state the other side of this great social question.

The Trade-Union Congress is unlike all others, inasmuch as the delegates did not meet to consider what was best for society, but how they could make the public serve the ends they had in view. It appears trade-unionists live in a world of their own, the creation of which is not for the benefit of the community, but only to protect their privileges, and to get more wages for less labour. I am not going to state that no honour is due to the delegates for their exposition of trade-union wants, and what they intend to do; but it must be remembered they represented the aggregated wisdom of the whole body of trade-unionists. Mr. Potter, in his introductory paper, for once deviated from the usual course, and got but small praise for his pains; and in treating politic and impolitic questions he told some truths relating to the misexpenditure of earnings by the working classes. That part of the social question has been treated on often before. The author of "Lives of the Engineers," in the *Quarterly Review* for July, 1860, showed what could be done by the working classes if they would understand wise spending as well as great earnings. Teetotallers, for the last thirty years, have told the public that the expenditure of wages by the working classes in intoxicating drinks was the cause of untold misery. It led to short work, bad pay, ill health, and pauperism, and, in short, was the cause of almost all the evils which afflict society; and they also add this proviso, which science and experience prove,—that man is best without intoxicating drinks, as they supply no physical want, and no place is found for them in the human organisation. We teach and practise teetotalism, not for the purpose of winning strikes, but to win humanity into better and wiser paths. The question of arbitration is an important one, and touches a practical one, which may in time be successfully carried out. It seems that but few are aware that arbitration was tried some time prior to its re-introduction by Mr. Mundella, and I think it would have been well to have inquired into its partial success and collapse. In the "British Almanac and Companion" for 1857, an article appeared giving "A History of Arbitration in Trade Disputes;" and I find so early as 1854 a conference was held under the auspices of the Society of Arts; and as far back as 1829 the lace-makers of Nottingham established a sort of court of arbitration to lessen certain evils then existing. It further gives the results of boards of arbitration, in connexion with 16 other trades, some of which were successful for a time, and then failed for want of a compulsory law to keep the machinery in motion. The "Conseils de Prudhommes" in France appear to be unsuited to trade disputes in this country, as they only deal with minor cases, which are personal to the employer and single workmen; while in this country arbitration seems to be established to settle disputes in which hundreds or thousands are concerned. I think an amalgamation of the two systems is wanted in England, which must be made compulsory; as, without a law to enforce arbitration, it will, after the novelty has worn off, fail when it is most wanted. Some doubts have been expressed about the working of a compulsory law, as it is said the law cannot, in a free country, force workmen or employers to accept an adverse decision. And herein lies the difficulty of arbitration. I think employers would, as a rule, accept the conditions of the board, as their interests are materially affected by a strike, and some method might be found to deal with those who would not accept the ruling of the board. And as to the workmen, the law should be framed so as to protect employers in respect to their obtaining other workmen, by making it criminal to obstruct or molest them, by picketing or otherwise, in obtaining workmen willing to work on the terms agreed to by the board.

The repeal of the combination laws was demanded by the congress, or, at least, that "part which prevents a number of workmen coercing or intimidating a smaller number from following their usual employment." The delegates also demand that trade organisations of working men should be placed in the same position as other legal associations. The question resolves itself into, What are legal associations? In most cases they are easily definable;—a trading or manufacturing company which fulfils the conditions imposed by the legislature; or a number of men engaged in a co-operative business, and carrying it on without interfering with the action of others, is a legal association. But if three out of four were to unite, and determine the fourth should in all respects conform to the rules and regulations of the others, and, by molestation, try to force it into compliance, they would no longer be legal, and the public would not recognise them as such. Trade-unionists demand that the law shall legalise their right to work, or refuse to work, with certain persons. One speaker gave an illustration of who one class of these certain persons were; *i.e.*, if a man took 5s. a day when the market value was 6s., and they said they had as great a right to refuse to work with him as he had to take that payment. If it happens a man is an inferior hand, or has some other misfortune, and no employer would give him work at full wages, trade-unionists would turn him into the world to starve, because he was not gifted with the same powers as they possessed. Such law, if passed, would be an outrage on humanity, and ought to be condemned by all who claim to belong to civilised society. It does seem that legal trade-unions are to be different from all legal associations, and will have nothing in sympathy with the progress of the age. A barbarous people might, perhaps, pass such laws as the trade-unionists demand, and savages might be found to put them into effect; but for a number of men to ask, in this the nineteenth century, for retrogression and despotism, is adding one more to the curiosities of civilization.

In another letter I will examine other favourite dogmas of trade-unionists, to show they are bad in theory, and an agitation for them to be put in practice would do great injury to the working classes; and that there is something more than the profits of capital which regulate the rate of wages. JACK PLANE.

ARCHITECTS' ACTIONS.

BECK *v.* STEWART.

THIS was an action brought in the Queen's Bench by Mr. George Beck, an architect, of Hastings, against the Rev. Halley Stewart, a Dissenting minister of the same place, to recover 143*l.* 17*s.* 3*d.* under the following circumstances:—

The defendant paid 15*l.* 15*s.* into court. This action was referred from the last assizes at Maidstone to Mr. John Phillips, of Mitre-court, Temple, by consent of both parties. The reference took place on Monday, the 31st ult.

The inquiry was a protracted one, and lasted from 11 a.m. to 6 p.m. Several witnesses were examined *pro* and *con.*, and among them the plaintiff and defendant. The case was shortly as follows:—In the year 1868 defendant came to plaintiff, and having stated he had some money at his command, instructed him to look out some properties in Hastings which might be converted into a ladies' seminary. Plaintiff accordingly did so, and viewed and inquired into several properties likely to be had for the purpose. This lasted until the middle of 1868, and that scheme was abandoned. Soon after, defendant purchased some land on the Clive Vale estate, Hastings, and instructed plaintiff to prepare plans, &c., for a block of twenty-four labourers' dwellings, to be built in flats; this was done. Specifications prepared, quantities taken, notices for tenders for the works issued, and tenders received; and in consequence, as defendant alleged, that the amount exceeded his resources, the buildings were abandoned. Defendant asked for his bill, which was tendered, amounting to 159*l.* 12*s.* 3*d.*, and defendant paid him 15 guineas which he considered was all he was entitled to; and the ground of his defence was, that the plaintiff undertook that each dwelling should not exceed in amount the sum 90*l.* Plaintiff, on the other hand, proved to the complete satisfaction of the arbitrator in the suit that no such stipulation was made, and on Saturday, the 4th, the arbitrator published his award, which was in favour of the plaintiff, Mr. Beck, for the full amount claimed, and also the costs of the cause and the reference.

NEW WORKS OF THE CHARTERED GAS COMPANY.

THE Society of Engineers paid a visit the other day to the new works of the Chartered Gas Company near Barking, which have been erected for the Company by the Messrs. Aird, from the designs of the Company's engineer, Mr. Evans, at the cost of about 600,000*l.* According to the official account of the visit, the cylinders to carry the pier are now being sunk. The method employed is one well known. It consists in excavating the ground from the interior, and allowing the consecutive sections to sink by their own gravity. If necessary, they can be weighted, should any obstacle obstruct their descent, and should they get fast, the aid of a driver is called in to ascertain the cause. Being 6 ft. in diameter, these cylinders offer great facilities for carrying on the sinking operations. The separate lengths are 1¼ in. in thickness, with flanges on the inside, through which they are bolted together. As it is necessary to carry them down about 10 ft. into the hard gravel, they are sunk some 30 ft. below the Ordnance datum, and their total height is not far less than 60 ft. The superstructure will consist of wrought-iron girders fixed on the cylinders, and the pier will form a direct communication between the river and the retort-houses. It projects at right angles from the river wall, and after continuing in this direction for about 400 ft., it turns suddenly "up stream" for nearly double that distance. The coal will be raised by steam or hydraulic power from the barges into trucks on the pier, which will run

from it along a viaduct, which forms, in fact, a continuation of this pier into the retort-houses. The river wall extends 1,000 ft. of the 1,500 ft. frontage belonging to the Company. It is built of brick, coped with stone, and protected in the usual manner by fender piles, which are bolted right through the wall in a secure and substantial manner. The gas having been made will pass into gas-holders, which have a diameter of 180 ft., and the united contents of the four will amount to 4,000,000 cubic feet. To supply these reservoirs, the retort-houses, which are also four in number, will contain 1,080 retorts, each of which is 20 ft. in length, and capable of being charged at both extremities. The main pipes are 4 ft. and 3 ft. in diameter respectively, and the operation of laying them was inspected by the party. They were conveyed to the spot, over a light railway, which has been laid down on a road which will eventually connect the gasworks with a point on the Barking-road. In consequence of the isolated nature of the locality, it was necessary to construct this road in order to effect inland intercommunication.

EXETER HALL, STRAND.

THE large room at Exeter Hall and the approaches to it have been painted and decorated with more force than finesse. The coved ceiling is divided by bands of yellow and by wreaths of red and green, upon a greenish blue ground, into geometrical forms, amongst which the numerous ventilators play a prominent part. The walls are of a sort of fawn colour, with pilasters of light green, and all the enrichments—which are Greek in style—have been painted in bright colours; the whole being supported by a dado panelled in vermilion and black. The large organ is painted and gilded in patterns that suggest Egypt.

The forms into which the ceiling is divided are somewhat large and coarse, and the pattern is awkwardly broken in the centre. The side walls, too, are a little gloomy. What the effect will be when the room is lighted up with gas we have not yet had the opportunity of seeing. The work has been carefully done by Messrs. Harland & Fisher, under the direction of Mr. A. W. Maberly, architect.

"SPARE THE TREES."

As large tracts of land are continually being let on building leases in the neighbourhood of the metropolis, and as the Finchley-road estate, long preserved from being built upon, will now, I suppose, be gradually covered with houses, allow me to ask your powerful aid in drawing the attention of builders to the ruinous mistake they so often make in cutting down all the trees on their ground. In a large field close to my residence there was a fine row of lime-trees fronting the main road. The field was let for building. Every one of these trees was immediately cut down, besides three or four fine old elm-trees along the side road. Large houses were run up, and a set of wretched little stuccoed arches, by way of entrance-gates, were built where the trees had previously stood. The houses do not let, and the builders are in the *Gazette*. Had the houses been rather smaller, placed further back from the road, and protected from it by the said trees, they would have been most attractive residences for gentlemen wearied with the day spent among noise and glare, crowds of people and interminable brick and mortar in the great city. But if those gentlemen can find something more countrified within reasonable distance, we may be sure they will not take houses with nothing to look upon but a brick wall, stucco arches, and the houses on the opposite side of the way. When will builders understand that men who come away from business in London want, of all things, to look on trees and grass, to be free from the sights and sounds that have been pressing on them all day long?

It would seem as if, to some extent, builders are already aware of this fact, from their often planting little saplings in front of their houses when finished. But this only makes their suicidal policy of cutting down well-grown trees (which no money and only many years can replace) the more painfully absurd. In the case just referred to, a few little things have been stuck into the ground, but they will give no real refreshment or shelter to the eyes for many years. The foreman's mind, at least, was enlightened on the subject one day, but too late, when a gentleman came to look at the houses, and said, pointing to some trees yet undemolished on the further side of the field, "Ah! if they were only near those trees I would take one of them," little thinking how many had been destroyed close by. H. S.

GAS.

THE present price of gas per thousand cubic feet is, in Leeds, 3s. 6d.; Bury, 3s. 4d.; Salford, 3s. 4d.; Manchester, 3s. 2d.; Ashton, 3s. 2d.; Sheffield, 3s. 3d.; Liverpool United, 3s.; Dudley, 3s.; Stockport, 3s.; Carlisle, 3s.; Stalybridge, 3s.; Derby, 2s. 11d.; Warrington, 2s. 9d.; Plymouth, 2s. 9d.; Cardiff, 2s. 9d.; Birmingham and Staffordshire, 2s. 6d.; Newcastle-on-Tyne, 2s. 6d.; and Walsall, 2s. 4d. Not only have the Manchester people the advantage of cheap gas, but what is more, and what the Londoners with their higher-priced gas have not, the Manchester gas consumers have gas that is good as well as cheap; and still more than all, the Manchester gas yields to the corporation, who provide it, and of course to the people, handsome profits, which have been laid out in reducing local taxation, and carrying out city improvements.

LINSEED OIL.

SIR,—Can any of your readers inform me of some easy way of testing linseed oil? It is important to the trade, as I believe it to be largely adulterated with resin oil or other material; preventing the work from drying hard and firm.

H. L. D.

*** A considerable amount of information on the subject of the too general adulteration of linseed oil will be found in an earlier volume of the *Builder*.

"SOUTH-EASTERN RAILWAY MANAGEMENT, OR OTHERWISE."

SIR,—As you have already entered a protest on the above subject, will you allow me to state that I yesterday sent a clerk, to meet a clergyman, a client, who was leaving town by the 4 p.m. train from Charing Cross Station. The business was, of course, urgent. The clerk arrived in reasonable time, but was informed that he could not on any account be allowed to pass the barrier, although he stated the circumstances and the urgency of the case, and pointed out the gentleman at the further end of the platform. After many minutes wasted in solicitation on the part of my clerk, and stern denial on the part of the official, that dignitary deigned to state that my assistant must obtain a porter, who could inform my client that he was required. Of course, some time was consumed in finding this Mercury in corduroys; and, of course, also by that time my client had taken his seat in one of the carriages, and Mercury had to inquire for him at each compartment, my client having eventually to walk from the further end of the platform to the barrier, as the train was starting. As it was, I believe, he *did* regain his carriage, or at all events went by that train; but had the business taken two instead of one minute to transact, it is obvious that he would have been seriously inconvenienced.

ARCHITECT.

MANCHESTER ARCHITECTS.

SIR,—For several months past the following advertisements have been inserted in the *Manchester Guardian*:—

No. 1.—Plans, specifications, &c., by an Architect, upon exceedingly reasonable terms. Preliminary sketch designs gratis.

No. 2.—An Architect is open to make plans, &c., for Buildings at his own Office on advantageous terms.

On Saturday last there was also the following advertisement:—

No. 3.—Plans by an Architect 1½ per cent.

A clerk of mine who had been a book-keeper in a builder's office, and who only came to mine to copy specifications, I found practising on his own account, calling himself an architect, copying my plans, &c. On finding that out I immediately discharged him. I then asked a friend to answer the above advertisements in order to ascertain whether any other of my assistants were doing the same, when he received three replies, of which the enclosed are copies. What will the so-called profession come to?

AN ARCHITECT.

THE SOUTH SHIELDS' TOWNHALL COMPETITION.

SIR,—I think it is due to the competitors that they should know the way the above competition has been conducted; therefore I extract from the *Newcastle Chronicle* the following intelligence:—

"Mr. Ald. James said he would, if the council was willing, read Mr. Hall's report about the plan of 'I Work to Win.' Mr. Young jumped up and protested against reading of the report, as unfair to the other competitors. It was understood that no one should know who the architects were who were competing, yet he understood that one of the architects had sent circulars to the members of the council, and the letters contained his initials and the post mark. When he voted for 'I Work to Win,' he knew for whom he was voting. Such a proceeding was very unfair to the other competitors.

Mr. Stainton asked if it was genenerally known by the council who this man was who signed the initials 'J. D.' so plainly.

Mr. Young said it was Johnston.

Mr. Stainton said, if the name of the man was generally known, he would propose that his plan be knocked out of the competition.

Several cried, 'No, no.' 'The name is only surmised; but Mr. Young persisted in shouting, 'Johnston; his name is Johnston.'

After further discussion the vote was taken, when the first premium was given to 'I Work to Win,' the plan 'Well considered' being declared the winner of the second prize.

The envelopes bearing the mottoes of the winning plans were then opened, and it was found the winner of the first prize was Mr. J. Johnston, architect, Clayton-street, Newcastle.

Mr. Young: I told you so."

I wish to ask the architectural profession in general, and Mr. Johnston in particular, if it be considered decent for a professional man to take unfair advantage of other competitors by sending circulars to members of the town council so as to obtain votes for a design submitted.

HONESTY.

VENTNOR CEMETERY COMPETITION.

SIR,—The Ventnor Burial Board must thoroughly believe the proverb which tells us that "a corporation has no soul to be saved or body to be kicked," otherwise they would have a wholesome dread of an attack of that disease which a coroner's jury declared to have been the cause of death of an old miser, who suddenly dropped dead after giving a beggar a farthing,—viz., "enlargement of the heart."

This liberal Board offer the magnificent premium of 20*l.* for plans, specifications, and estimates for laying out and enclosing burial-ground, and building a house for curator, and two chapels. But, stop a moment: the Board are not so liberal as they appear to be; for, on reading the advertisement carefully, you will observe that the Board offer the premium, not for the best set of plans, estimates, &c., nor even for that one which the Board in its wisdom may consider the best, but "for the plans which may be adopted." The Board have only to decline to adopt any plan, and they will then have very cheaply sucked the brains of all those who may be so innocent as to respond to their invitation. Nothing is said about employing the successful (?) competitor to superintend the buildings on the usual terms, and for a very good reason, which is this, I am told:—The Burial Board, some time ago, looked out for the work a young man, who calls himself a civil engineer, and have appointed him surveyor to the Board. It appears, therefore, their surveyor having had no experience in architecture, that the Board are desirous of getting, at little or no cost, an idea to set him going with. Why did the Board offer their 20*l.* in the local newspapers a whole week before advertising it in the *Builder*, which is the recognised organ for such announcements?

VERB. SAT. SAP.

BRIDGE AT LEEDS: COMPETITION.

SIR,—Allow me to draw your attention to an advertisement which has lately appeared in the newspapers of a competition for a bridge at Leeds, and which appears to me to be worthy of special notice. The premium offered for the best design is 100 guineas, and that for the next best is 50 guineas. The remarkable part of the advertisement is, that competitors are told that before they can be furnished with the block plan and conditions to enable them to compete, they must pay one guinea to Mr. C. A. Curwood, the town-clerk of Leeds. Thus if 150 competitors (no unusual number in these days) apply, they will, between them, pay the two premiums; and, as the corporation expressly guard themselves from undertaking to employ the recipient of the first premium in the execution of the work, the competition resolves itself into a sweepstakes, where the entrance-money is one guinea, and the first and second prizes 100 guineas and 50 guineas respectively.

It appears to me that the competitors might as well invest a guinea in a good sweepstake on next year's Derby as spend a guinea in acquiring the plans and particulars of this competition. In the former case their guinea would have an equally good chance of being returned with 99 more guineas, and they would save themselves the trouble and expense of preparing the competition designs. If the gumea were demanded as caution-money, it should be returned to those who send in designs; but, as the case now stands, it is an ingenious device for making the competitors pay all or part of the premiums, and it does credit even to a Yorkshireman's acuteness.

C. E.

THE "SENTINEL AT WINDSOR."

SIR,—The anecdote of the "Sentinel at Windsor" being saved by a clock being verified to have struck "thirteen"—which is doubtless true—was considerably older in date than the existence of the present "St. Paul's" clock, or bell, and, I believe, occurred about the time of James I., or a little later; and the bell which he heard was the great one in the old tower of St. Stephen's, Palace-yard (seen in views by Hollar, &c.); which being nearer the water, and at a different aspect of the river, was, perhaps, more audible at Windsor. At any rate, that was the bell.

J. D. P.

MARGATE.

SIR,—Amongst minor matters that require attention, some improvement might surely be made in the reception given to those who arrive by the "husbands' boat," which is simply disgraceful, to say the least. Jaded, and perhaps ill, after an unaccustomed roll on the sea, the passenger no sooner finds himself on the top of the steps of the Jetty than he is compelled to "run the gauntlet" of a long lane of hooting and yelling beings, more like savages than civilized friends, who treat him as though he had committed some horrible crime, and sadly try the nerves of a sensitive man.

B.

American Institute of Architects.—We have before us reports of papers read before the New York Chapter of the American Institute of Architects, and will give some account of them on another occasion.

FROM SCOTLAND.

St. John's Episcopal Church, Forres. — This church has been reopened for divine service by the Bishop of Moray and Ross, Primus of the Scottish Episcopal Church. The building consists of a nave, with transepts and circular chancel, and is arranged after the style of the Basilica. The interior has been entirely renovated, and the whole apse richly diapered in colour with devices about the altar and on the part forming the reredos. The three apse windows are by Barnett, of Newcastle. They are memorial windows, placed respectively by Captain and Mrs. Dunbar, of Seapark, Lady Gordon-Cumming, and Mr. John Grant, of Glenmoriston. A circular window at the west end of the church is also of stained glass, and is contributed by members of the congregation. The altar, and the whole of the apse in which it stands, the pulpit, reading-desk, pews, &c., have been renewed at the cost of Mrs. Dunbar, of Seapark, and her son, Mr. J. A. D. Dunbar, jun., of Seapark, after designs by Mr. Ross, of Inverness.

Consecration of St. Paul's Episcopal Church, Strathnairn. — This church was opened on Tuesday last, and consecrated by the Bishop of Moray and Ross. The building has been erected from funds left for that purpose by the late Mr. Macgillivray, of Dunnraglass. It was designed by Mr. Alexander Ross, architect, and is of the early English Gothic style, built of granite, with freestone dressings. It consists of a nave with apsidal termination, and belfry at the west gable. The interior woodwork is of red pine, with open timber roof. The stained glass windows are four in number, by A. & W. O'Connor, of London, and are placed by Mr. Sutherland Walker, of Aberarder. The rose window in the west gable is in memory of the late Archdeacon Mackenzie, the centre representing the Sermon on the Mount, the quatrefoil surrounding containing illustrations of the Beatitudes. The other three windows in the apse represent the conversion of St. Paul, the Crucifixion, and the Good Samaritan. The church is seated for 150.

CHURCH-BUILDING NEWS.

Hammersmith.—A new church is to be erected in Masborough-road, Brook-green, Hammersmith. The district to be assigned to it has sprung up during the last few years, and contains a large extent of building ground, which is being rapidly covered with houses. The population is upwards of 4,000, of which at least 3,000 are of the working classes. The cost will be abont 6,000*l*. The new church will be dedicated to St. Matthew.

Disley.—The church here has just been reopened, after refitting and alterations, carried out under the direction of Messrs. Medland & Henry Taylor, architects, Manchester. It is situated on the brow of a hill overlooking the Buxton railway. It has a tower, and a wooden-panelled ceiling to the nave. The interior was pewed up in an unsightly and uncomfortable fashion. The chancel had no fittings, except the table and iron rail, and had a flat white-washed ceiling, with a small parlour-like plaster cornice all round. Mr. Legh, M.P., of Lyme Hall, provided a sum for the first work that was undertaken, and there have been some special gifts for the altar-rail by a number of the communicants, and for the pulpit by Mr. Scott, and also general subscriptions liberal in amount. The chancel has been laid with encaustic tiling, and furnished with brass altar-rails and carved oak stalls. The plaster ceiling and "parlour" cornice have given place to a panelled ceiling of pitch pine. On the north side of the sanctuary there is a niche, used as credence and piscina, the stone arch over it being carved into a *fleur-de-lis*, with reference to the dedication of the church to St. Mary. The chancel window-sill is so near the floor that there is no room for a reredos; but all the space round the east window has been decorated in coloured devices with legends and emblems, at intervals. The pulpit is mainly of white Caen stone, carved and traceried all over. Red stone is used for the cornice, and for panels, &c., to show by relief the patterns wrought in the white stone. There are alabaster shafts at each angle. The heads of the four evangelists are carved in the cornice. The stairs wind round, so that the preacher enters the pulpit direct from the vestry. All the old pews in the nave and aisles have been removed, new floors have been put in, the decayed timber removed, ventilation underneath provided, and new open benches of pitch pine have been put in throughout on the ground floor. The gallery has yet to be made comfortable, and, if possible, more church-like. The baptistery has been railed off at the north-west corner of the north aisle, and the old font removed there.

Silloth.—The chief stone of a new church, according to the *Carlisle Journal*, has been laid at Silloth. An accumulation of blocks of granite lying between Esk-street and Caldew-street, and fronting the promenade which intervenes between Criffel-street and the sea, forms the materials with which the new church is to be built. The edifice will be Early Decorated, and comprise a nave of five bays, with north and south aisles; an apsidal chancel, with two small transepts, that on the south side forming an organ-chamber and vestry, with cellar underneath for the heating apparatus. The church does not stand due east and west, but presents its longest front to the sea, the principal entrance being under the contemplated tower, which will stand at the corner towards the sea first reached from the station; a second entrance being provided in the transept for the benefit of visitors from Skinburness; and a third entrance on the opposite side adjoining the vestry, and facing the town of Silloth. The aisle windows are trefoil-headed; the clearstory and windows of the so-called west front, facing Esk-street, have crisping of an early character, and are all to be worked out in the white Tallentire stone, with which all the external dressed stone of the building is to be carried out; while the walls themselves are faced with the granite now on the site. This will make Silloth Church to differ in appearance from all the others in the diocese. The interior of the church will be lined with white brick, relieved with bands of red brick, introduced to mark the most prominent architectural features. The church is about 50 ft. from the floor to the apex of the roof. It is not contemplated at present to build the tower and spire. The tower will be about 20 ft. square, with buttresses at each corner, and will be of three stages in height, with moulded and recessed doorway on the first stage, and belfry windows on the upper story. The centre stage is to be furnished with a clock with gabled cover in itself. The tower is to be surmounted with a slender spire, to be covered either with slate or shingle banded with lead, rising in all to a height of about 130 ft. to 140 ft. The church provides 503 sittings, and is from the designs, made some four or five years ago, of Mr. Charles Ferguson, of the firm of Cory & Ferguson, of Carlisle, architects, under whose superintendence the work will be caried out. The concrete foundations are rapidly being put in.

Exeter.—The new hospital chapel, which has, at the cost of Mr. Arthur Kempe, been erected for the use of the inmates of the Devon and Exeter Hospital, has been formally opened. Mr. Hayward, the architect of the Albert Museum, prepared the plans. It is built of brickwork, in uniformity with the hospital. The exterior is plain and simple, though of a sufficiently ecclesiastical character to proclaim its use. The chapel stands at the north end of the hospital, and is approached by a covered passage. It will seat about 150 persons. It is 64½ ft. in length, and 23 ft. wide, and has an apsidal eastern end. For the interior side of the walls cream-colour bricks have been used, the arches and other parts of the work being relieved by red bricks. The ceiling is polygonal, and is divided by wooden ribs into panels, which are now plain surfaces of plaster work, but which are intended to be ornamented with colour and appropriate devices. The ribs of the ceiling spring from marble shafts, which have carved pendents and caps. The chapel is lighted by a large window of three lights at the western end, by nine lancet openings in the sides, and by four circular windows in the apsidal end. All the windows are filled with thick rolled white glass, relieved by borders of pale green. The walls adjoining the seats are lined with oak boarding, as high as the string course at the bottom of the windows, and the seats themselves are of the same material, space being allowed for the infirm and crippled. The eastern end of the chapel is raised two steps above the general level. Here the walls are covered as high as the string course under the windows with tiles arranged in plain and ornamental bands. Immediately over the altar-table a cross of alabaster is inserted in the tiling. The whole of the floor, except in the seats, where boarding is used, is laid with Maw & Co.'s tiles, plain red and black in the passages, and mixed with encaustic at the eastern end. The building will be heated by warm-water pipes under the floor, supplied from the apparatus in the hospital, and is ventilated by openings in the roof, as well as by casements in the windows. The exterior of the chapel shows no attempt at embellishment. At the western end rises a bell turret, which has a square pyramidal roof resting on four pillars of Bishop's Lydeard stone, having carved capitals of Bath stone. On the north side is a vestry for the use of the chaplain. The high brick wall, which formerly inclosed the ground now occupied by the chapel, is replaced on the Southernhay side with a light iron railing, and granite piers. Messrs. Moass & Sons are the builders. The carving has been done by Mr. Hems, who did the carving at the Albert Museum. The entire cost of the structure will be about 2,000*l*.

Bridgend.—St. Catherine's Church, Pontypridd, has been opened for divine service. The edifice is the first church of which Pontypridd can boast. The town has, during the last twenty years, advanced as much as any other town in South Wales, and the fact is testified by there being many Dissenting chapels, but up to the present time the members of the Church have had to attend divine service in a narrow low room, uncomfortable to all. St. Catherine's Church, from want of necessary funds, has been in course of erection nearly four years. The architect was Mr. Norton.

Howden.—The ancient collegiate church at Howden, which has been for some time undergoing a renovation, has been re-opened for divine service. The thick covering of whitewash and dirt which hid the masonry has been removed from the arches in the nave and the clear-story. The proportions of the structure are now more clearly defined, and the removal of the organ to the north corner of the transept and the consequent opening out of two windows in the south aisle, has added to the architectural effect of the interior. Of the bells, three have been recast. The total amount expended in the restoration of the church is about 800*l*.

Newcastle-upon-Tyne.—A meeting has been held in the vestry of St. Nicholas's Church, to consider the plans and site for the proposed Archbishop Longley's memorial church, in the new parish of St. Philip's, Arthur's-hill, Newcastle. The Archdeacon of Northumberland was in the chair. The Rev. S. Shepherd, jun., hon. sec. to the committee, and incumbent of the new parish, said they had already received subscriptions and promises amounting to 1,000*l*. Several friends had also intimated their intention of subscribing. Mr. Boyd, one of the committee, stated that they had applied to Mr. Redmayne, architect, of Manchester, for plans, and he had sent them those produced. If the church were completed in accordance with the plans, it would be capable of accommodating 650 persons. The rough estimate of the cost was about 5,000*l*., including the full height of the tower, and excepting one of the aisles. According to the plans, the full height of the tower would be 175 ft., the cost of which would be 1,300*l*.; but if it were raised to 40 ft. the cost would be 500*l*. It was finally resolved that the plans should be provisionally accepted, subject to the approval of the archdeacon and bishop, and to any alterations which the committee might afterwards propose; and "that the secretary be authorised to treat with Mr. Walters, agent for Mr. Darnell, for his site, subject to the approval of the bishop."

DISSENTING CHURCH-BUILDING NEWS.

St. Lawrence (Ramsgate).—A small mission chapel is now in course of erection in the Denmark-road, for the Primitive Methodists. Mr. John R. Collett is the architect, and Mr. W. Osborn the contractor.

Plymouth.—The new Presbyterian Church at Eldad, the foundation-stone of which was laid in August of last year, has been opened for divine service. It has been erected to take the place of an iron building, which was opened in 1862, and which provided accommodation for about 650 persons, with school premises in the basement for 400 children, but owing to the accommodation of the iron church proving inadequate to meet the wants of a growing congregation, it was resolved that a large stone church should be erected on the same site, and the new church will provide accommodation for nearly 1,200 persons, while the schools and class-rooms in the basement will accommodate 700 children. The new church is 80 ft. long by 50 ft. wide, and is 40 ft. high from floor to ceiling. The design is an adaptation of the Italian style of architec-

ture. The walls are built of limestone obtained from Pomphlete. The entrance doorways and window openings are formed of Portland stone and the cornices, capitals, and other moulded work are executed in Portland cement. The ceiling is panelled with gilt mouldings, and the church is lighted by means of sunlights, with ornamental work surrounding them. These are attached to the ceilings, and there are also brackets under the galleries. The galleries form three sides of the church, and the fronts are ornamented. The pulpit is constructed of pitch pine and deal; the seats are also of deal, and all the wood work is stained and varnished. The entrance lobby will be paved with Maw's tiles. The works have been carried out by Mr. Walter Lethbridge, of Plymouth, from the designs and under the immediate superintendence of Mr. J. L. Hodge, of Plymouth. The carving of the stone capitals of the window mullions was executed by Mr. Hems, of Exmouth, and the gas-fittings were supplied by Messrs. Monk & Westlake.

Tynemouth.—The foundation-stone of the new Wesleyan Methodist chapel to be built at Tynemouth has been laid. The site is in the Front-street. The south façade is to be in the Front-street, and the chapel will extend backwards to Middle-street. A central entrance into a large lobby, with doors on each side, leads respectively to the staircases of the galleries and the ground-floor; the pulpit is at the further end, the minister's vestry behind, and over this is a gallery for the organ and choir. The style adopted for the building is the Renaissance, and the stone selected for use is the Prudham. The central part is advanced slightly to obtain a subordination of parts. The circular-headed entrance-door forms a prominent feature of the front, with carved caps, spandrels, &c., and other mouldings. On each side of the door are two windows divided by pilasters; these light the lower part of the staircase lobbies. The lower part is divided from the upper by a cornice, on which rests the pedestal of the upper order. There are to be six columns or pilasters, with windows, in each division. The columns, having carved caps, support the cornice, extending across the entire front and round the ends of the building. The centre projecting part is to be terminated by a pediment. The entire width of the front is 52 ft., the internal width 46 ft. 4 in., and the extreme length of the inside is 74 ft. The sides of the chapel are partially concealed by adjacent buildings. The front of the galleries is supported by rows of metal columns, which divide the pews on the ground-floor into three groups; in the side galleries there are three, and at the south end eight pews. The roof is high pitched and open, carved brackets from the roof beams resting upon stone corbels in the wall. Consideration has been given to heating and ventilation. Accommodation has been provided for 720 adults. The contract for the execution of the whole of the works has been let to Mr. Thomas Robson, builder, South Shields. The cost of the building will be about 3,000*l.* The architect is Mr. F. R. N. Haswell, of North Shields.

Ipswich.—The Congregational chapel, the memorial stone of which was recently laid, will occupy a site in the centre of a part of the town, St. Clement's district, where a church was much needed. Messrs. Cattermole & Eade were the architects employed to prepare plans for the new chapel. Part of the site is described in the deeds as a place on which a chapel stood. Coins were found of Elizabeth's reign. The ground presented considerable difficulties, owing to the irregularity of its form, and the rapid rise of the ground from the Front to the Back Hamlet. The architects have planned a chapel which will give accommodation for about 450 people, besides a school-room calculated to hold 150 children, and class-rooms. The principal front of the chapel will be that facing the Front Hamlet, and will consist of a gable of red brick with white brick dressings, of no pretensions to architectural beauty. Owing to the rise in the ground, the chapel floor will be some 9 ft. 6 in. above the level of the street, flights of steps leading from the two doors, one on each side, to the entrance-lobby of the chapel. The basement will be used for class-rooms, lighted by rectangular windows. Above these are three plain pointed windows, and then a window with five lancet lights. The edifice will be 60 ft. long by 39 ft. in width, and the height to the ceiling line in the roof will be 32 ft., the height of the walls being 22 ft. At the back of the chapel there will be a minister's vestry, and a vestry for the deacons, and behind the school-room separate yards for the boys and girls. Mr. W. G. Cunnold is the builder, the amount of the contract being 1,237*l.*

Luddenden.—A new Congregational church has been erected at Booth. Mr. Ralph Nicholson, of London, supplied the plans, while resident at Halifax in 1868. The new building, which is in the Lombardic style, is erected close to the old one, on an elevated site, a little above the Luddenden stream. It is 100 ft. long, 40 ft. wide, and about 40 ft. from floor to ceiling. The principal front, facing south, is flanked at each end by towers, and in the centre of the gable is a large circular window filled in with seven plain circles. On each side of the chapel are double rows of windows, the upper row consisting of five two-light windows, with a circular light over each. The interior of the church has, on three sides, galleries sweeping round the south end in a half circle, the fronts having ornamental iron panels, backed with scarlet cloth. The seats are all open, and are constructed of red deal, which will be stained. In the bottom of the chapel the aisles will be laid with Mosaic tiles, by Messrs. Hargreaves, of Manchester. The organ recess is at the north end. It is a circular one, being supported by two clusters of three iron pillars, and two single ones. The old organ will be removed into it, and there is also room for the choir. Underneath this is a minister's vestry, with a smaller vestry for the deacons. Behind the organ recess is a half circular lobby leading from the north-east staircase. The entrance to the gallery is on the north-west side, on a level with the chapel yard; there being also a staircase on the north-east side, and one from the front entrance. The pulpit is a temporary structure, which will be replaced by one in keeping with the style of the chapel. The roof is a partly open one, and the chapel will be lighted by two sun-lights, about 8 ft. from the top, in addition to pendants on the walls, which are to be painted in imitation of stone work. The accommodation will be ample for about 700 people, allowing 20 in. for each person. The scholars will be seated at the south end of the gallery, opposite the organ and pulpit. As it is intended to convert the old chapel into a school, a wide passage of communication has been constructed between it and the new building. The windows are all filled in with tinted cathedral glass, and the building is warmed by an apparatus, supplied by Mr. Thornton, of Huddersfield. The moulding round the windows is made to form an architrave. The works, though not yet complete, are so far advanced as to allow of the church being opened for divine service. The new edifice is surrounded by grounds laid out in rockeries, flower-beds, &c. The new and old chapels with minister's residence, chapel-keeper's house, &c., are all now within one boundary wall, and there are several approaches to the grounds from the roads both above and below the buildings. The builders are Messrs. King & Pickles, of Halifax; joiner, Mr. Fox, of Sowerby Bridge; painter, Mr. Binns, of King Cross; and plumbers, Messrs. Firth & Sons, of Halifax.

STAINED GLASS.

Sunderland. — The windows in the north transept of the New Church, Stockton-road, have recently been filled with stained glass. The centre window contains a representation of our Lord dispensing the Last Supper, and the two side windows are illustrative of the Agony in the Garden. Above is a rose window, traceried principally with three cinquefoils, which are filled with devotional angels. Texts and ornamentation are introduced throughout. The windows are erected by Mr. Samuel Alcock, Ashmore, to the memory of his son, William Charles Alcock, who was unfortunately drowned in the Mediterranean. The artists were Messrs. James Ballantine & Son, of Edinburgh.

St. John the Evangelist's, Leeds.—A stained glass window, by Messrs. Ward & Hughes, of London, has been placed in the south-east of the chancel of this church as a tribute to the late vicar, the Rev. Edward Monro, M.A. Rich and poor have contributed to the window, and the Sunday-school children contributed 20*l.* From this circumstance it is usually called the children's window, and is placed close to their seats in the chancel aisle. The design is similar to one in Sidmouth Church, executed by Messrs. Ward & Hughes, by command of the Queen, in memory of her father, the late Duke of Kent. The principal group embraces the greater portion of the two centre compartments, and represents our Lord as saying, "Suffer the little children to come unto me, and forbid them not. And He took them up in His arms, put His hands upon them, and blessed them." The two side lights and lower compartments of centre lights represent the acts of mercy, as follows:—Feeding the hungry; giving water to the thirsty; receiving the stranger; clothing the naked; visiting the sick; aiding the prisoner; teaching the young; caring for the orphans. At the base of the window is a large block of polished Connemara marble, on which is placed a brass, with the inscription.

PROVINCIAL NEWS.

Grimsby.—A private meeting of the corporation was recently held in reference to the scheme for a bridge over the railway and old docks. Mr. Sacré, civil engineer of the Manchester, Sheffield, and Lincolnshire Company, coming to Grimsby on other business, attended the council meeting by prior arrangement. Reporters were refused admission. Both the proposed bridges, however, were considered, and Mr. Sacré expressed himself desirous of meeting the wishes of the council as far as possible in the matter of economising the cost of the bridges. He undertook to draw the best plans he could with that view, and submit them at an early day to the council, and intimated that he would not charge the corporation anything for his professional services.

Ripon.—The almshouses of St. Anne, otherwise called Maison-de-Dieu Hospital, supposed to have been erected in the time of Edward VI., having become dilapidated, and the late Mr. H. Greenwood and his sister, of West Lodge, Ripon, having left a sum of money to be laid out in rebuilding the almshouses, the foundation-stone has been laid by Miss Greenwood. Messrs. Perkens & Sons, of Leeds, are the architects; and Mr. J. Thackwray, of Ripon, the builder. The style of the new building is Domestic Gothic.

Macclesfield.—The works connected with the building of the new county asylum in Macclesfield, which have been in progress about eighteen months, may be said to be approaching towards the half of their completion. The extensive ground-plan is nearly covered with the several sections of the buildings, and about two-thirds of the main building, as well as the governor's house, are covered in. The recreation hall, which will form one of the chief features of the centre block, is now being roofed, and three out of the four large day-rooms,—two in each wing of the building, are also covered in, likewise the intervening corridors, dormitories, &c. The offices, store-rooms, cooking, washing, and other departments are situated in the centre block, and have ready communication with the male and female portions in the right and left wings of the building, each of which will be complete in itself, having separate infirmaries, fever wards, &c. The clock tower, standing about 90 ft. high, will be supplied with dial plates, 8 ft. in diameter, and will be seen from a considerable distance. The town's water has been conveyed to the spot, but the pressure is much below what is desirable: provision, however, for the storage of water is being made by the erection of several water towers. The governor's residence occupies a central position, and, like every other part of the institution—being on a high level—will command charming views of the surrounding country. A chapel is being erected on the ground for the accommodation of the patients. Excepting this edifice, which is of stone, the whole of the buildings are of red brick, varied by the introduction of black and white blocks of Staffordshire ware. The whole of the brick used in the construction has been made on the spot from several beds of clay found on the site. The architect is Mr. Griffiths, of Stafford, and the contractor, Mr. Lovatt, of Wolverhampton. Between 400 and 500 workmen are employed on the works, the great majority of whom, together with the extensive building plant, steam engines, horses, carts, &c., have been brought by the contractor from his works at Wolverhampton and other places.

The Wolf Rock Lighthouse Door.—The brass door made for the Wolf Rock Lighthouse weighs 13 cwt., and cost 170*l.* Where it will be fixed, a door of solid oak, 4 in. thick, was shivered into fragments by the sea, and one 4 in. thick, strengthened by bars of iron 4 in. square, is *locum tenens* till the brass one be put up.

PATENTS CONNECTED WITH BUILDING.

BRICK-KILNS. — *G. & J. Wilson.* Dated November 11th, 1868.—The inventors make a number of openings about half way up the kiln, through the external walls thereof, for the admission of cold air into the bags at or about the centre of the kiln, whereby they obtain greater control over the heat and prevent the formation of smoke. Three perforated quarries, or fire-brick lumps or slabs, are employed, placed one behind the other, and standing over the inner arch of the fire-hole. These perforated quarries further assist in preventing smoke, and serve to keep the fire to the bottom of the kiln. Extending straight down from the outer perforated quarry or brick above referred to is the regulator hole or passage, which communicates with a perforated hot and cold air chamber immediately above the fire-hole. This regulator hole and chamber are for facilitating the supply of fuel to the fire-hole, and for admitting hot and cold air thereto. The front of the fire-hole is perforated with numerous holes leading into various parts of the fire-hole, and supplying air thereto for keeping up a uniform and active combustion.

CLOSETS AND URINALS. — *N. Voice.* Dated 18th January, 1869.—This consists of a mechanical arrangement for operating the pan valve of water-closets, and for regulating the supply of water thereto by the simple opening and closing of the closet door. The arrangement consists of sliding rods or bars connected to the door, and by an arm to the valve lever, so that when the door is opened the rods and arm cause the valve lever to rise or move, whereby the pan valve is lowered, and the valve for admitting water to the basin is opened; and again, when the door is closed, the valve lever is lowered or returned, and the reverse action takes place. The valve lever may be weighted so as to return the parts to their normal position, and close the door when pressure is removed from the door; but as the weight for this purpose would have to be heavy, it is preferred to fit a strong spring to the door, so as to keep the same closed when not pushed or pulled open.

HORSE NAILS.—*J. W. Price.* Dated January 18th, 1869.—This consists in providing a machine employed in this manufacture with a special furnace through which the nail-rod is passed continuously before arriving at the anvil or anvils; also in an automatic feed motion for propelling the nail-rod, and in the employment in such machines of two distinct anvils and hammers, one of which anvils is stationary and the other moveable. One of these anvils has formed on its face a die representing a nail on its side, and the other a die representing a nail on its flat, or these dies may be formed on the faces of the hammers of the respective anvils, or partly in the hammer and partly in the anvil in each case.

BURNING BRICKS.—A communication.—*John H. Johnson.* Dated 18th January, 1869.—The essential feature of this invention consists in so constructing a brick kiln that the products of combustion from fires contained in furnaces at one end of the kiln are caused to forcibly permeate the mass of bricks by the action of jets of steam or other equivalent exhausting device situate at the opposite end of the kiln, and *vice versâ*, the products of combustion being caused to pass through the mass from one end to the other of the kiln, first in one direction and then in the opposite direction, thereby heating the bricks uniformly throughout; jets of steam are also directed into the combustion chambers and over the fuel of those fireplaces which are in action for the time being, as well as into their corresponding ash-pits.

FLOORING CRAMP.—*W. & J. Pain.* Dated 19th January, 1869.—This improved floor-dog is composed of a metal plate, having a boss pierced with a slightly inclined screw-tapped hole, through which passes a screw, the head of which is perforated to receive the end of a lever, and the opposite end socketed in a foot plate. The metal plate traversed by the screw also carries two gripping levers bolted loosely on its unnerside, the plate being pierced with several holes, so that the pivoting of the grippers may be shifted at pleasure.

WATER-CLOSETS. — *J. Steel, N.B.* Dated 13th January, 1869.—A space is enclosed by walls outside of the staircase, and is carried up the entire height of the building or nearly so. This space is partially boarded over and a closet with a seat is constructed at each flat, but the several closets are arranged so that the space below each seat is perfectly clear down to the bottom. Thus if the space or shaft enclosed by the walls were continued with the same width up to the top, which could be done if preferred, then the top closet would occupy the whole horizontal area, the next below it would occupy that area diminished by a shaft from the seat above, and the lower ones would occupy spaces diminished by the other shafts corresponding to the number of shafts above.

WINDOW BLINDS.—*W. P. Wright.*—Dated 15th January, 1869.—This consists first in making blind-rollers in two parts, that is to say, using a strip of wood of a semicircular or other convenient form with a semicircular or other shaped groove on the flat sides, and by cutting off strips so formed in suitable lengths, using two of such pieces or lengths for a roller, and securing them together by glue or other means; the internal groove will be continuous and uniform from end to end, with an open joint sufficiently apart to allow the fabric or material of the blind to pass between in the following manner:—A broad hem is formed on the top of the blind, into which a strip of wood or other suitable material may be inserted, sliding the same with the blind into the groove of the roller from the end, an opening being formed in the single flanged metal end for allowing the blind proper to pass in, and securing such end by screwing in the ordinary way, and the other metal end has a sunken groove, or double flanges, which metal end it is preferred to put together in parts, produced partly by casting, drawing, and pressing, and fixed together with press tools, to which a single elevating blind-cord is connected and wound around the same by the drawing down of the blind, the metal ends having projecting centres in the ordinary way working in brackets formed on the window frame.

Books Received.

The New Bankruptcy Act, 1869; together with the Act for the Abolition of Imprisonment for Debt. By T. T. Weightman, B.A., Barrister-at-Law. London: Routledge & Sons.

THE whole law of debtor and creditor is so interfered with by the new Bankruptcy Act, and the Act for the Abolition of Imprisonment for Debt, that it becomes necessary for all persons to make themselves acquainted with these statutes. The author of the little book before us, Mr. Weightman, has arranged the sections of the new Act under their different headings, and endeavoured to place the new law before the general reader in a simple manner. His *résumé* of the new Act may be usefully quoted:—

"Let us see what are the general provisions of the new Act, 32 & 33 Vict., c. 71, which comes into operation on the 1st of January, 1870, and which repeals the whole of the existing law of bankruptcy. The court has hitherto consisted of commissioners in London and the country, with a number of officers, registrars, official assignees, messengers, and others, who had the government of bankruptcy proceedings. In their stead the new Act substitutes a London court, with one chief judge, and gives in the country districts the bankruptcy jurisdiction to the county courts.

Creditors elect their own officer, called a trustee, and choose further a committee of inspection to superintend the proceedings. By these provisions there will be a better opportunity for the creditors to realize the assets, and prevent any improper dealing with the property of the bankrupt.

A petition for adjudication might be presented by the debtor himself, according to the Act of 1861; but that provision is now repealed, and under the new Act a petition can only be presented by some creditor or creditors. The trustee is to collect the assets. When the bankrupt has paid 10*s.* in the pound, he will be entitled to his discharge; and he will further be entitled to his discharge if the creditors pass a resolution that his misfortune was involuntarily incurred. Where no discharge is granted, the bankrupt is to be unmolested for *three* years; but at the expiration of that time any portion of his property, on application of creditors, may be sequestrated. This latter provision of the new Act was also an enactment of the old Insolvent Debtors Act, but never applied to bankrupts, an omission productive of much evil and abuse. All imprisonment for debt is to be abolished, provision for which is made by a separate Act, 'The Debtors Act,' 32 & 33 Vict., c. 62; but in certain cases imprisonment is made the punishment, where any fraud has been committed in contracting a debt. Under the existing law, county court judges have the power of imprisoning debtors who have the means and refuse to pay their creditors. This power is to be extended to the superior courts, in cases where the debt is above 50*l.*"

Both the Acts come into operation on the 1st of January next. Mr. Weightman's book will be found useful.

VARIORUM.

Mr. J. N. Redcliffe's "Report on the Results of an Inquiry into the Causes of the Turbidity of the Water supplied by the Southwark and Vauxhall, and Lambeth Water Companies" has already properly received attention in many quarters. We will look to it another time.——"Modern Workshop Practice," by John G. Winton, Engineer (Strahan & Co., Ludgate-hill), applies to the manufacture of marine, land, and locomotive engines, floating docks, dredging machines, bridges, and cranes. For 3*s.* it gives a very large amount of useful and suggestive information.——Alnwick Castle is the subject for Mr. S. C. Hall's "Stately Homes of England" in the current number of the *Art Journal*. It is very fully illustrated. The *Journal* agrees with us in condemning the position of the Peabody statue behind the Royal Exchange.

Miscellanea.

The Naples Waterworks.—The plan for the execution of the Naples Waterworks, which is now before the Municipal Council of that city, is supported by Baron Erlanger, who has made financial arrangements in Paris, amounting to about one million and a half sterling, for carrying out the entire matter at once. The preliminary deposit, 200,000 francs of the caution money (40,000*l.*), was paid by him on the 24th ult. The plan of the engineer and concessionnaire, Mr. E. Petits, adopted by Baron Erlanger, is to conduct the spring waters of the basin of Sereno, which are of the greatest purity, to Naples, a city of 600,000 inhabitants, from a distance of about twenty miles. The whole system is high pressure and a constant service of an unlimited supply in the loftiest houses, an inestimable advantage in a hot climate. It is understood Messrs. Laschi, of Vicenza and Verona, are the contractors for a considerable portion of the works. Messrs. Coathupe & Co., 38, Cornhill, are the English agents.

The Pollution of the River Aire.—The following resolutions, amongst others, were adopted at a recent meeting of the proprietors of the estates on the banks of the river Aire below Leeds:—

"That the pollution of the river Aire, below Leeds, occasioned by the discharge of offensive matter from the sewerage works of the Leeds corporation, has recently increased so rapidly, and has now become so serious, that the health of the inhabitants throughout the valley is seriously affected, and during the summer months it is unsafe to reside on its banks; and that the water itself has become so impure as to become totally unfit for cattle, and destructive to fish." "That by the provisions of the 25th section of the 'Towns Improvement Clauses Act, 1847,' incorporated with the 'Leeds Improvement Amendment Act, 1848,' under which the corporation obtained Parliamentary power to convey their sewage into the river Aire, the corporation are under express obligation to take care that their works shall in no case create a nuisance." "That Messrs. Dibb, Atkinson, and Braithwaite be requested, on behalf of the proprietors present and represented at this meeting, to apprise the corporation of the proceedings in contemplation, and that the corporation be requested to state, within one month, whether they are prepared to give a satisfactory assurance that measures will be forthwith adopted for effectually abating the existing nuisances; and further, that no additional drainage districts shall be connected with the existing sewers until such measures have been carried into effect."

Megalithic Monuments.—At the Exeter meeting of *savants*, Mr. A. L. Lewis read a paper on this subject. He pointed out the practically unbroken chain of megalithic monuments extending from India to Great Britain, and asked who were their builders? Such an identity of plan as could not be accidental, extending through an unbroken chain of communication, and the existence of common practices and superstitions, and other traces of affinity throughout that chain, led to the conclusion that there must at least have been a great common influence at work throughout this area, though possibly not an absolute community of race. They were probably constructed under Celtic influences, at least in Europe and Africa. The consideration of a number of facts, he urged, induced the belief that the single upright stones (menhirs) were used as memorial pillars, the circles and alignments primarily as places of sacrifice, and the dolmens, or table stones, of which there are two well-marked varieties, as places of sepulture on the one hand, and places of sacrifice or memorial on the other.

Flowers and Fruit for Sick and Poor.—Leston, in the United States, has a well-organised system for the distribution of flowers to the sick, the idea of which, according to the *New York Times*, was suggested by a little girl, and inquiries are now being made in the city of New York whether a similar arrangement cannot be made to secure the distribution of fruit among the poorer classes.

The International Statistical Congress. The seventh meeting of this congress was held this year at the Hague. The previous meetings were held successively at Brussels, in 1853; Paris, in 1855; Vienna, in 1857; London, in 1860, under the presidency of Prince Albert; at Berlin, in 1863; and at Florence in 1867. The British delegates and fellows of the Statistical Society present were Lord Houghton, W. Newmarch, F.R.S. (the president), Dr. W. Farr, F.R.S., J. F. Hammick, R. Valpy, P. L. Simmonds, S. Brown, W. T. Thomson, E. Chadwick, C.B., W. Donnelly, C.B., J. Heywood, &c. The other foreign representatives numbered more than 100, exclusive of the Dutch. The countries which have sent delegates to the congress are the United States, Austria, Baden, Bavaria, Belgium, Denmark, Spain, France, Great Britain, Greece, Hamburg, Hesse, Hungary, Italy, Mecklenburg, Norway, Prussia, Roumania, Russia, Saxony, Servia, Sweden, Switzerland, and Würtemberg. The general assembly was divided into the following five sections:—1. Theory of statistics and application of statistical facts; 2. Statistics of justice, civil and commercial; 3. Finances; 4. Fisheries and commerce; 5. Statistics of the European Transatlantic possessions. Rooms were placed at the disposal of each of these sections in the Parliament House. On Sunday, the 5th inst., a public dinner was given to about 100 guests in the great room of the Zoological and Botanical Society, M. Quetelet, presiding, supported by the ministers of the Interior and of Finance. On Monday, the 6th, the king received the delegates officially, at a special audience, at ten o'clock, and afterwards they visited the queen, at the palace in the wood. On Monday evening there was a special musical *fête* in the Zoological Gardens, which were brilliantly illuminated. On subsequent days there were other receptions, dinners, *fêtes*, &c. The palaces, picture-galleries, museums, libraries, hospitals, and other public buildings were thrown open free to members of the congress.

Opening of New Dock at Birkenhead.—The Morpeth Branch Dock, which has been constructed on the site of the old Morpeth or Woodside Basin, has been opened. The original Morpeth Dock was entered by an opening in the north-west corner of the Woodside Basin, which was simply a large open space that dried at low water, and was principally useful for vessels to beach on, being fitted with a large gridiron alongside the west quay. Soon after Mr. Fosbery Lyster took engineering charge of the dock estate, he found that this basin was rapidly silting up, and that the necessity of constantly dredging the approach to the Morpeth Dock quite overbalanced any advantage derived from the sheltered parts of the entrance. He accordingly proposed to the Dock Board that in addition to enlarging the Morpeth Dock itself, a new entrance should be made, consisting of a passage 85 ft. wide, running from the dock in a south-easterly direction, and opening directly upon the river, having four pairs of gates, and including a locking chamber 398 ft. in length,—the south-western quay traversing the site of the old Morpeth Basin in a slanting direction to its river face at the south-east corner. The portion of the basin thus enclosed he suggested should be made into a branch dock of triangular form, having an opening from the Morpeth Dock at its old entrance of 85 ft. width. The work was in progress about two years, and has been recently completed. The depth of the new branch dock is about 3 ft. below the level of the sill at the entrance, and, with a 20 ft. 4 in. tide, there is a depth of 34 ft. 6 in. water in the dock.

London General Omnibus Company.—The extraordinary (half-yearly) general meeting of shareholders has been held. It appeared from the report that the gross receipts of the company during the half year ended 30th June last amounted to 270,925*l.* 16s. 8d., and that during the corresponding half-year of 1868 the gross receipts amounted to 284,780*l.* 14s. 6d., showing a decrease of 13,354*l.* 17s. 10d. The total expenses during the half-year ended 30th June last were 252,455*l.* 12s. 2d., and the expenses in the corresponding period of 1868 were 277,722*l.* 12s. 3d., showing a decrease of 25,267*l.* 0s. 1d.; balance remaining from previous half-year, 686*l.* 12s. 7d.; profit on the working account, 18,470*l.* 4s. 6d. The directors proposed to declare a dividend of 2s. 6d. per share, or 6¼ per cent. per annum, free of income-tax, amounting to 18,708*l.* 11s. 2d. The report and accounts were adopted, and the dividend was declared.

The Earthquake-proof Dwellings of the Japanese.—The frequency of earthquakes in Japan is a reason for nearly all the habitations of man there being built of wood; and by long experience Japanese builders have arrived at certain modes of building by which the great danger of a house coming down upon the inmates is in many cases obviated. They seem, says Mr. Dickson, in his book on Japan, to depend upon the roof for weight; and the piles upon which this heavy roof rests are not fixed firmly into the ground, but some of them are fixed slightly into a square framework of wood, laid on stone, while the others stand simply each upon the surface of a large, round, hard, water-rolled stone, which has been firmly imbedded in broken-down sandstone. By this means the snap of a sudden shock is avoided, and some slight motion is allowed. Whatever be the principle upon which these houses are erected, it is wonderful to see buildings which seem to be put up in a shape the most ready to topple over upon the least motion, withstand the shocks of earthquakes for ages. There are pagodas in many parts of the country of seven and even nine stories high. At Kamakura is a temple with a narrow circular neck, above which the eaves of a square roof project to about 10 ft. on every side, resembling the projection of a Chinaman's hat. It is said to be two hundred years old. The Californians, who want to know how to make earthquake-proof buildings, should make a run across to Japan and study the subject there.

Drowning by Carbonic Acid Gas in Wells.—Two more cases have occurred, in which four persons have been suffocated or drowned in the heavy gas which is so apt to lodge in wells. In one of these cases, at Rochdale, well-sinking was going on: the well had been sunk 24 ft. by 4 ft. 6 in. wide: water had been got, and, after a night's interval, one of the well-sinkers was lowered, without previously testing the air with a light, and almost immediately he fell over as if in a fit. Another at once slid down to his aid, and of course met with the same fate. *Then* a rope was tied round a volunteer, who also became stupefied, and had to be drawn up. Wool-hooks were then got, and the two poor fellows were hooked up quite dead. In the other case, a well-fitter was engaged about 16 ft. down a well in altering the piping and must have been overcome by the gas. He fell into the water, and disappeared, while no one was looking on. Another went down in about an hour, but had to be raised to the surface again from the influence of the foul air upon him. A third man then insisted on going down, though warned of the state of the well, and was allowed to do so, even without any rope attached to him. He also, of course, was overcome by the gas; and in fifteen or twenty minutes a young man was lowered, at last with a rope attached, and succeeded in fastening ropes round the two dead bodies, when all were hauled up. Warning and instruction are of no avail. Some people will believe in nothing they cannot see or handle. Well-sinkers and fitters, however, ought to know better.

The "Wand-laus."—To ears polite this German word may be more tolerable than the vulgar cognomen "bug," with which, as wall-louse, it is synonymous. A correspondent, "W. H. C.," the 101st, at least, who has made anxious inquiries of us, one time with another, as to this celebrated and interesting creature, wishes to know how to dispose of him in a wall without injuring the paper. The pyrethrum powders are said to be of use, and as these powders may be blown into crevices, or on to papers, from the puff-balls, we should think they might be blown off again without injury to the paper; but we doubt the possibility of getting them out of a wall without scraping off the paper, and dosing them well with something like chloride of lime. The chloride, however, might be used in their favourite haunts, and the paper on these parts renewed after scraping, at very little expense, if the paper-pattern happened to be obtainable. As the wall-louse feeds on the paste of wall papers, could not the paste be well spiced with something that would be good for them, especially if that could be done without necessitating resort to heroic remedies such as corrosive sublimate, arsenic, *et hoc genus omne?* It is said there are insect powders, such as Keating's of St. Paul's Churchyard, which kill insects without being poisonous to animal life generally; but whether such powders would be still effectual when mixed with paste we do not know.

The Question of Public Mortuaries.—At the last meeting of the Clerkenwell vestry, Mr. Franklin referred to the strong remarks made by Dr. Hardwicke, the deputy coroner for Central Middlesex, upon the condition of the Clerkenwell mortuary, and suggested that some improvement in the way of ventilation should be made, as its present state was most discreditable. Mr. Croucher "hoped the ratepayers' money would not be fooled away in altering the building." Mr. Thompson thought the erection of the mortuary was one of the most proper works undertaken by the vestry. Mr. Hopkins "hoped the vestry would let the matter drop; and, as to improving the ventilation, he hoped nothing of the kind would be done, as a storm of indignation would be raised over their heads if the ventilation were improved." Mr. E. D. Johnson was astounded at the observations of Mr. Hopkins, and he agreed with Dr. Hardwicke that the public mortuaries should be kept in a fit and proper condition. Mr. Brooke should be glad to vote such a sum as would place the building in such a state as to induce the poor to take the dead bodies of their relatives there until they were buried. Mr. Gillingwater suggested that a disinfectant should be used in the mortuary. After some further discussion, a resolution, moved by Mr. Hopkins, and seconded by Mr. Croucher, to the effect that no further outlay should be made upon the mortuary, was put and lost, and the matter was referred to the sanitary committee to report upon.

Miss Coutts's Market and the Tradesmen.—A meeting of the tradesmen of Hackney-road and neighbourhood has been held, for the purpose of considering the great detriment to trade in the vicinity, occasioned by the destruction of a large number of houses in the erection of Miss Burdett Coutts's Columbia-market. The demolition, it was stated, had resulted in the removal of a large number of people from the locality, and the tradesmen had consequently sustained a serious loss. The chairman said that 91 houses had been removed to make room for the market and the model dwellings, but in consequence of some misunderstanding in the purchase of one of the houses, affairs had remained *in statu quo*, and the ground was unoccupied. Resolutions appropriate to the occasion, and to the opinion of the tradesmen present, were passed, including a memorial to Miss Coutts. Mr. Mortlock, in moving a resolution, which was passed, that a deputation be sent to the vestries of St. Leonard, Shoreditch, and St. Matthew, Bethnal Green, said he thought the market was entirely out of place in the east of London, and was better suited to the west. Passers-by inquired whether it was a cathedral. He thought Miss Coutts was not aware of the fact that 400 families had been driven away, and that distress had been caused by the ground remaining unused.

Does Brain Work shorten Life?—An American paper, treating on this subject, says,—"In the Massachusetts report for 1867, it is stated that in twenty-five years nearly, the deaths of 3,565 professional men had been reported, with an average of 50·5 years, and 9,856 merchants, financiers, agents, &c., with an average age of 48·4 years. The average of those who died in some of the most important professions and occupations was as follows:—

	Years.		Years.
Bankers'	54·7	Judges and Justices	66·4
Bank Officers	54·8	Lawyers	56·1
Merchants	53·0	Physicians	56·0
Booksellers	50·5	Professors	56·0
Clergymen	57·8	Public Officers	64·5

Many more are injured by excessive indulgences of the bodily passions and appetites than by excessive indulgence in literary labour. Tobacco and alcohol produce far more softening of the brain and disease of the heart among students in this country than close application to their studies. The leading public men of all countries, notwithstanding their severe mental labour and the excitement of their anxious life, reach old age. In fact, the brain men, independent of dissipation, seem to outlast ordinary men.

The Velarium.—The fresco lately discovered in Pompeii, and now in the Bourbon Museum at Naples, is said to show that the Velarium was not, in all cases at any rate, a covering for the whole area of the amphitheatre, to protect from sun or rain, but merely a curtain or awning for the upper galleries. Stairs are represented, leading up to the boxes set apart for the gladiators. Some remains of these stairs may still be traced in the ruins.

Whitworth Scholarships.—The following is a list of the successful candidates, with their ages, occupations, and the number of marks they obtained, who have been reported to the Science and Art Department as entitled to the ten Whitworth scholarships of 100*l.* a year each:—William H. Greenwood, aged 23, engineer, student at the Mechanics' Institution, Manchester, 143 marks; Thomas A. Hearson, aged 23, engineer student, Royal School of Naval Architecture, 137 marks; John Hopkinson, B.Sc., aged 19, student at Cambridge University, 134 marks; Thomas S. Elgood, aged 24, mechanical engineer, Leicester, and Owens College, Manchester, 127 marks; George A. Greenhill, aged 21, student at Christ's Hospital School, and Cambridge University, 116 marks; John R. Brittle, aged 23, engineer, student at Sir Walter St. John's School, Battersea, 113 marks; Thomas W. Phillips, aged 23, student at British School, Millwall, and Royal College of Science, Dublin, 100 marks; Richard Sennett, aged 21, engineer, student at the Royal School of Naval Architecture, 98 marks; Robert B. Buckley, aged 21, engineer, student at Merchant Taylors' School, 97 marks; Charles E. Leeds, aged 23, B.A. (Oxon), student at Oxford University, 96 marks.

Tramway Branchlets to Railways.—The prospectus of the Tram-Railway Company of Great Britain, with a capital of 500,000*l.*, in five series of 100,000*l.* in shares of 10*l.* each, has been issued. The company, which proposes to purchase the patent of Mr. Thomas Page, C.E., and Mr. Haworth, is started for the purpose of bringing, by properly constructed tramways or road-rails, into direct communication with the existing railway systems, outlying towns and districts, without building costly viaducts, embankments, and bridges, or making tunnels and cuttings. It is stated by the company's engineers that the cost per mile of a tram-railway on the company's systems will average about 2,000*l.*, while the cost per mile of the railways already existing, including purchase of land, &c., has averaged 35,000*l.* The prospectus informs us that "The public highways will not in any way be obstructed, nor the ordinary traffic impeded," and that "an ingenious locomotive, the invention of Mr. Page, will be employed where required, which will ascend steep gradients, make no noise, and, by incorporating with it the leading characteristics of Allen's economic engine, will be worked at a cost of about one-third of an ordinary locomotive."

Self-moving Velocipedes, Cabs, and other Vehicles.—In reference to an announcement in the *Builder* from Paris that a velocipede, or traverser at least, has been invented in which the weight of the sitter on the vehicle is made to act in impelling it, a constant subscriber, who dates from Manchester, and says he is "one who desires a change in the old-fashioned time-worn carts, cabs, omnibuses, &c.," thus writes to us:—"You may say that it is easy for the weight to be placed so as partly to revolve the wheel, but how is the weight to be brought to bear a second time? I say simply by a lever. I believe that the plan of the French velocipede that they are about to patent will be something in this shape; but if it is, I will beat them, for I am making one that is like a young horse that will not stand still except I hold it. I feel quite convinced that this weight as a motive power will revolutionise all kinds of conveyances." We do not quite see it in the light in which our correspondent puts it; but what is of decided importance here is to find that the subject of self-moving vehicles is fermenting in the public brain as it is in that of our correspondent.

Death of Dantan, the French Sculptor. The death of Dantan, the younger, telegraphed from Baden, has caused regret in the artistic world. Jean Pierre Dantan was born in 1800. Like his brother and many other sculptors, Marochetti among the number, Dantan was a pupil of Bosio. His comic statuettes of Count D'Orsay, Lord Brougham, Talleyrand, and a host of notabilities, won him fame and gold. His chisel, however, produced serious works, such as the statue of Adelaide Kemble, the bust of Grisi and one of Rose Cheri.

A Friendly Pitcher.—Mr. Sidney Davey's "Pitcher" machine has been in operation at St. Agnes. It will receive sheaves from six hands at once and deliver to as many more, at a height of 30 ft., or any lesser height. By means of the "pitcher," and other machines, Mr. Davey secured the produce of 125 acres of corn in four days.

The Royal Albert Asylum at Lancaster. A public meeting in aid of this institution has been held at Ulverstone, under the presidency of the Duke of Devonshire. The object, according to the chairman, was to raise funds to build and start, free from debt, an institution on the model of Earlswood, which would afford accommodation for 500 inmates, and be capable of easy extension. Considering the wealth of the seven associated counties there ought to be no difficulty in obtaining the 19,000*l.* still needed; and his Grace concluded by forcibly appealing to Ulverston and the North Lonsdale district generally to do its full share of the work in raising the amount. Resolutions expressive of hearty sympathy with the object of the meeting, and appointing an influential local committee, were carried.

South London Music Hall.—The foundation-stone of the new South London Music-hall, in the London-road, Southwark, has been laid by Mr. Stanley Vickers, M.P. The building is being erected by Mr. Edwin Villiers, a caterer for the public in music-hall entertainments. The building is 118 ft. long, 70 ft. wide, and 50 ft. high, interior measurement. The stage, which will be erected on the south side, will be the whole width of the building, and will have beneath it a space of 20 ft. deep, to receive the scenery. The style of the building will be Italian. The pit and stalls will be on the ground floor, the boxes on the first floor, and the gallery above. The hall will be capable of holding between 3,000 and 4,000 persons comfortably, but on a pressure as many as 5,000 persons can be accommodated. The orchestra will be 30 ft. wide, and will hold forty performers. The internal decorations are not yet decided upon. The outer walls have been nearly completed.

The New Telegraph Act.—Under the new Telegraph Act, passed on the 9th ult., arrangements are being made by the Postmaster-General with the various telegraph companies, and in a short time it is expected the telegraphs will be in the hands of the Government. By the Act of last year, the sum of 5,715,048*l.* 8s. 11d. was authorised to be paid to the companies mentioned. The chief object now sought is to give authority to the Treasury to raise funds which will be required to enable the Postmaster-General to carry into effect the arrangements he is making. The Treasury may raise sums not exceeding, 7,000,000*l.* for the purposes of the Act, either by terminable annuities, or by the creation of Exchequer Bills or Bonds, and the moneys raised are to be placed at the disposal of the Postmaster-General under certain regulations. The accounts, &c., are to be laid before Parliament. Messages are to be deemed "post letters," and the present and last year's Act to be considered as "Post-office Laws."

Free Libraries in Berkshire.—A public meeting in furtherance of a proposed free library in Wallingford, in response to the Hon. Auberon Herbert's offer of pecuniary assistance, has been held in the town-hall. Mr. Edward Wells, the president of the Wallingford Mechanics' Institution, occupied the chair. Mr. W. Blake Atkinson, the hon. secretary to the provisional committee, gave a statement of the steps that had been taken in the matter, from which it appeared that 177*l.* had been subscribed by inhabitants of the town and neighbourhood. Resolutions were then passed expressive of hearty approval of the undertaking, and recommending that the proposed free library should be incorporated with the mechanics' institution. The general feeling expressed was that a building should be erected; and further promises of substantial support were made. It is stated that Wallingford has been the first town to lay claim to one of Mr. Herbert's gifts of 150*l.*, having been the first to fulfil the required conditions.

Opening of the Corporation Baths, Sheffield.—These baths have been formally opened by the Mayor. The building possesses no architectural points whatever, being merely a red brick building of a very ordinary character. Mr. S. F. Holmes, the borough surveyor, having but a limited estimate to work upon, set aside architectural features to make the inside as spacious and comfortable as possible. The swimming-bath is large and well lighted. The water which will be used in the baths will be applied to the flushing of the defective sewers in the adjoining streets. For this purpose drainage pipes have been laid from the baths to the sewers.

A Canal from Calais to Calcutta.—Sir Arthur Cotton has proposed to the Indian Government a scheme for a canal from Calcutta to Calais, *viâ* the Caucasus. He points out that a great deal of work has already been done, there being already a canal from Hurdwar to Cawnpore, and one from Calcutta to Oolyabarah, besides numerous portions in Europe, while the Black Sea might be made use of in fine weather, and until the work was finished. The summit level of 13,453·6 ft. would be reached by a series of locks, worked by steam machinery; an abundant supply of water would be obtained there by an annicut across the source of the Euphrates; the surplus, after filling the canal, to be applied to irrigating the Khadir of the Caucasus, whence alone, he says, an abundant revenue might be obtained. Sir Arthur calculates that by means of this complete inland water communication, goods and passengers could be conveyed from India to Manchester at one-nineteenth of a pie per maund per mile, at an average speed of 2·2 miles per hour; and, in face of these facts, he protests against the public revenue being squandered upon railways.

A New Use of Photography.—The important problem of measuring distances and constructing plans and maps by means of photography has at length been solved, says the *North German Correspondent*. Since the art of photography has been sufficiently improved to permit the apparatus to be easily moved from place to place, and to produce pictures which are correct in a perspective point of view, the Berlin photographer, Mr. Meydenbauer, has paid great attention to the subject. At length he succeeded in convincing the Prussian Government of the correctness of his theories, and was commissioned to survey a fortification. In six months he had succeeded in obtaining 800 plates, and he met with no great difficulty in completing a photogrammetric instrument of such simplicity that a workman quite unacquainted with the art was able to draw up a special plan of a fortress on the scale of 1 to 2,500 after a few short instructions. The photographic camera can therefore in future be employed for a number of important purposes.

Enamelled Glass Mosaic Work.—Some specimens of enamelled glass mosaic work have recently been placed in the arcade of Exeter College, Oxford, immediately below the apse windows of the college chapel. The work was executed in Venice, by the Salviati firm, and placed in its present position by Luigi Verona and another Italian artificer, of London. The arcade stretches round the five sides of the chancel, each side containing three arches. Dr. Ridding, head-master of Winchester College, gave 300*l.* towards the work, the remainder of the cost being defrayed by several donations given at various times, supplemented by a vote from the college authorities. The altar steps, also just added, are of red Devonshire marble, and are the gift of one of the fellows of the college.

House-moving in Boston U.S.—In the work of straightening and widening some of the very crooked streets of Boston, it became necessary to move a building known as "Hotel Pelham." This building is of freestone, 96 ft. high, and weighs, it is estimated, 10,000 tons. It was moved 14 ft. in three days, by means of rollers and screws, a portion of the side-walk being also moved with it. No crack was made in the building, and nothing in it was at all disturbed. The fastest rate accomplished was 2 in. in four minutes. A large bank building adjoining the hotel was used to brace the screws against. A great number of these screws, 21 in. long, were employed. 25,000 dollars were paid to the contractor for moving the hotel.

Salisbury Cathedral.—The proposal to restore the choir of Salisbury Cathedral, at a cost of some 15,000*l.*, as a memorial of the late Bishop Hamilton, has been adopted throughout the diocese, and already upwards of 5,000*l.* have been subscribed towards the object. Mr. G. G. Scott has made a personal survey of the choir, and is preparing plans for the restoration.

Lead-encased Block-tin Water-pipe.—A tin pipe, covered with lead, was a desideratum for water and other liquids, and for gas, but especially for water. A pipe, which seems to be of American invention, has been patented by a Mr. Haines, in this country, to meet the desideratum. It is highly spoken of by Professor Silliman, and may not be so worthless an invention as some tin-lined lead pipes we have seen.

Aberystwyth.—A memorial stone of a new English Baptist chapel in Aberystwyth has been laid by Mr. E. M. Richards, M.P. for the county. The site is on the west side of Alfred-place. The plan is a parallelogram, 56 ft. by 33 ft. inside measurement. The ground floor and a gallery on one end will seat about 450 persons, and there are schoolrooms and vestries underneath. The back and side elevations are to a great extent hidden by other buildings, and are consequently plain, but the principal façade to Albert-place will present an elevation carried out with Rhuabon stone dressings and local stone worked square random. The ceiling will be of a wagon-head shape, cut up into ribs and panels with a large quantity of detail. All the pews are to be of pine, stained and varnished. The minister's platform will be of pitch pine, French polished. The contract has been let to Messrs. L. & J. Evans, local builders, for 1,560*l*. The architect is Mr. R. Owens, of Liverpool.

Saltley.—The inscription-stone of the Saltley Training College Schools has been laid. The buildings will occupy part of a plot of ground, 2½ acres in extent, recently added to the college, at a cost of 1,000*l*. They are designed by Messrs. Paull & Robinson, of Manchester, and are being erected by Messrs. Parnell & Son, of Rugby. They will consist of three principal schools, besides class-rooms, and will be especially adapted for giving to the students of the college practical instruction in the art of teaching. It is estimated that the cost of the schools (exclusive of the site) will be 2,500*l*. Towards meeting the expense of the purchase of the land and the erection of the schools there have been promised or received about 2,400*l*.

Some Effects of Combustion. — It is asserted that one hour after the gas of London is lighted the air is deoxidised as much as if 500,000 people had been added to its population. During the combustion of oil, tallow, gas, &c., water is produced as well as carbonic acid: in cold weather we see it condensed on the windows. By the burning of gas twenty-four hours in London more water, it is estimated, is produced than would supply an emigran-ship on a voyage from England to Australia.

New Blackfriars Bridge.—The report now is that the new bridge at Blackfriars will be opened to the public on Michaelmas-day, but we should think this very unlikely. At any rate, there can be no ceremonial of any consequence if it be so. The course of the traffic over the temporary bridge has been changed at the two ends so as to admit of the formation of the approaches to the new bridge.

Removal of the Sabloniere Hotel.—Often threatened, the building materials of this hotel in Leicester-square have at last been sold, and the clearance of the site for the purposes of projected improvements will shortly be effected. Hogarth came to live in 1733 in what is now the northern half of the hotel. If he were alive now he would make a telling picture of the present disreputable condition of the enclosure.

The Seat of H. H. Prince Duleep Singh. The mansion, Elvedon Hall, Norfolk, is in course of rebuilding, from the design of Mr. John Norton, the builders being Messrs. Cubitt, of Gray's-inn-road. The west wing is the first instalment. The present house was erected by Admiral Keppel, first Earl Albemarle, but in size is inadequate for the uses of the present owner.

TENDERS.

For the erection of St. Luke's National Schools (boys and girls), Preston. Messrs. Myres, Veevers, & Myres, architects:—

Cowell & Clayton	£1,817 0 0
Cooper & Tullis	1,712 3 6
Exton, Brothers	1,655 0 0
Bamber	1,630 0 0
Alston (accepted)	1,628 0 0

For rebuilding No. 3, Little Warner-street, Clerkenwell. Mr. W. P. Griffith, architect:—

Lidstone & Son	£378 12 0
Bamford	340 0 0
Martin	329 10 0
Wagstaff & Son	288 0 0

For new house and farm buildings, on the Rodstone Estate, near Brackley, Northamptonshire, for the Warden and Fellows of Merton College, Oxford. Messrs. Lavender & Son, architects:—

Hawkins	£2,590 7 8
Hedges & Son	2,510 16 8
J. & T. Davis	2,400 0 0
Munday	2,288 18 0
Haddon	2,195 0 0
Claridge	2,015 0 0

For the erection of large hall and offices for the Hammersmith Town-hall Company. Mr. H. Saxon Snell, architect. Quantities supplied:—

Pollard	£2,397 0 0
Taylor, Pitts, & Co.	2,350 0 0
Cowland	2,060 0 0
Henshaw	1,987 0 0
Blackmore & Morley	1,980 0 0
Manley & Rogers	1,979 0 0
Snowdon	1,955 0 0
Nutt & Co.	1,893 0 0
Nightingale	1,864 0 0
Crabbe & Vaughan	1,862 0 0
Rankin	1,850 0 0
Capps & Ritso	1,765 0 0

For alterations and additions to house and outbuildings at Stoke Prior Mills, near Bromsgrove, Worcestershire, for Mr. W. H. Wall. Mr. W. Seckham Witherington, architect:—

First Design.

	House.	Outbuildings.
Lovatt	£1,300 0 0	£318 13 3
Beard	1,200 0 0	282 0 0
Wood	1,159 12 0	237 18 0

Second Design.

		House and Outbuildings.
Lovatt	£741 5 11	
Wood	—	£832 4 6
Shilcock	—	694 1 6

For the erection of a dwelling-house, with offices and stabling, at Priory Park, Roehampton. Mr. F. Warburton Stent, architect:—

Hill, Keddell, & Waldram	£1,686 0 0
Gammon	1,648 0 0
Gascoyne	1,610 0 0
Wiscombe	1,558 0 0
Adamson	1,498 0 0
Ebbs & Sons	1,398 0 0

Accepted for alterations to Bancroft House, Hitchin, Herts, for Mr. C. W. Wilshere. Mr. J. Shilcock, architect:—

Bricklayer's and Plasterer's Work.

Warren	£160 0 0

Carpenter, Joiner, and Painter's Work.

French	£143 5 0

For new school and class rooms, for the Trustees of the Independent Chapel, Hitchin. Mr. J. Shilcock, architect:

Jeeves (accepted)	£1,020 0 0
Butterfield	1,000 0 0

For building three small houses, at Hitchin, for the Trustees of the Two Brewers' Benefit Society. Mr. J. Shilcock, architect:

Anderson	£451 7 0
Stapleton	440 0 0
Ansell	405 0 0
F. Jeeves	400 0 0
G. Jeeves	396 9 6
Joyner	395 17 6
Butterfield (accepted)	387 15 2

For villa residence, at Alsager, for Mr. John Keen. Mr. Geo. B. Ford, architect, Burslem:—

Lea	£1,761 17 0
Ellis	1,647 0 0
Hodgkinson	1,613 6 3
Wood (accepted)	1,514 0 0

For cottages at Spring Bank, near Tunstall. Mr. Geo. B. Ford, architect:—

Beech	£692 0 0
Hammersley	650 0 0
Sambrook (accepted)	600 0 0

For a pair of cottages on Fegg Hays Estate, near Tunstall. Mr. Geo. B. Ford, architect:—

Scragg	£213 0 0
Rowley & Whittingham (accepted)	210 0 0

For schoolmaster's house, at Crewe. Mr. Geo. B. Ford, architect:—

Ellson	£220 0 0
Wood	210 0 0

For erecting show-rooms and offices, in the Grosvenor-road, Pimlico, for Mr. B. Fabbricotti. Mr. F. G. Widdows, architect:—

Carter & Sons	£4,197 0 0
Rider & Son	4,130 0 0
Pritchard	4,084 0 0
Trollope & Sons	4,067 0 0
Fish	3,995 0 0
Conder	3,866 0 0
Ennor	3,854 0 0
Newman & Mann	3,676 0 0

For two residences, in the Woodford-road, Snaresbrook, for Mr. B. Rowbotham. Mr. F. G. Widdows, architect:—

Hunt & Elkington	£2,280 0 0

For additional farm buildings, Burleigh Cheshunt, for Mr. T. Humpidge. Mr. F. G. Widdows, architect:—

Chessum	£443 0 0

For new wing, at Royal St. Ann's Society's School, Brixton-hill. Mr. J. Wimble, architect:—

Jones	£1,494 15 0
Candler	1,480 0 0
Smith	1,445 0 0
Bartlett	1,370 0 0
Taylor	1,339 0 0
Ramsay	1,331 0 0
Andrew	1,290 0 0
Colls & Sons	1,245 0 0
McLaclan	1,160 0 0

For the erection of ten dwelling-houses (containing 100 suites of rooms, each suite consisting of living-room, scullery, two bedrooms, and W.C.), in Luke-street, Finsbury, for Mr. F. Foster. Mr. John S. Ellis, architect. Quantities not supplied:—

Dove, Brothers	£14,655 0 0
Maxwell	13,000 0 0
Bates (accepted)	11,000 0 0

For new rectory, Hutton, Somersetshire. Mr. Hans F. Price, architect:—

Shorney	£2,050 0 0
Escott & Co.	1,925 0 0
Harvey	1,763 13 0
Perry	1,710 0 0
Hartree	1,700 0 0
Hawkins & Sons	1,679 0 0
Bussell	1,512 10 0
Date	1,348 0 0
Gorrett (accepted)	1,265 0 0
Tucker	1,151 5 0

For additions and alterations to the Clock House, at Potter's Bar, Middlesex, for Messrs. Haddock. Quantities furnished by Mr. Shrubsole:—

Warne & Co.	£1,860 0 0
Lear	1,340 0 0
Walton	1,199 0 0
Cooke & Green	1,149 0 0
Crabbe & Vaughan	1,077 0 0
Till	1,073 0 0
Knight	997 0 0
Scrivener & Stephens	966 0 0
Turner	937 0 0
Shirley & Horne	898 0 0

For a block of buildings containing dwellings for sixty-five families, in addition to four large shops, to be erected on the Marquis of Westminster's Estate, Ebury-square, Pimlico, for the Improved Industrial Dwellings Company, limited. Messrs. Beck & Lee, architects. Quantities furnished by Messrs. Welch & Atkinson:—

Ashby & Horner	£14,360 0 0
Hill, Keddell, & Waldram	14,326 0 0
Brass	14,230 0 0
I'Anson	14,120 0 0
Jackson & Shaw	14,100 0 0
Conder	13,865 0 0
Henshaw	13,795 0 0
Myers & Sons	13,578 0 0
Perry & Co.	13,273 0 0
Allen & Son (accepted)	12,327 0 0

For erection of two houses, in the Lewes-road, Brighton, for Mr. H. Lester. Messrs. Goulty & Gibbons, architects:—

Lockyer (accepted)	£998 0 0

For a new billiard-room, at the Clarence Hotel, Stockwell, for Mr. W. Finch. Mr. Cutler, architect. Quantities supplied by Mr. Shrubsole:—

Dunstan	£868 0 0
Davis	860 0 0
Pitcher	810 0 0
Webb	721 0 0
Warne	700 0 0
Cooke & Green	700 0 0
Till	651 0 0
Smith	650 0 0
Crabbe & Vaughan	650 0 0
Cubitt	640 0 0
Hutchinson	600 0 0
Bleese	593 0 0
Shirley & Horne	590 0 0
Blackmore & Morley	575 0 0
Stone	570 0 0
Turner	528 0 0

For reseating and general repairs to Chertsey Parish Church. Mr. Blashill, architect. Quantities by Mr. T. M. Rickman:—

	Oak.	Pitch Pine.	Deal.
Conder	£1,493	£1,260	£1,175
Colls & Sons	1,423	1,252	1,160
King & Sons	1,363	1,087	1,037
Knight	1,357	1,255	1,029
Dove, Brothers*	1,180	1,134	1,031

* Accepted.

Poplar and Stepney Sick Asylum.—[List previously given.] Accepted tender:—

Mann	£29,932 0 0

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W. M. M. (it has often been asserted that electricity would be the best motive power for aërial navigation. W. M. M. only re-asserts the same thing).—W. C. T. (thanks).—R. B (shall be looked to).—H. H (we cannot enter into private disputes. The affair seems altogether exceptional).—E. F. J. (Aberthaw lime is not so much used in London as it might be if proper means were adopted to render its qualities known).—F. N. C.—C. W. J.—R. S.—J. W. B.—G. B. F.—L. & Sons.—F. G. W.—G. & G.—Jasper.—S. S.—A. R.—W. & B.—R. R.—J. J.—R. O.—W. S. W.—A. R.—F. N. C.—H. L. D.—N. & D.—A. J. T.—F. M.—Messrs. P.—G. W.—R. H.—J. S.—B. & L.—T. H. W.—E. A.—A. & C. H.—J. N.—G. R.—H. G.—E. & Son.—J. A. W.—S.—C. C. H.

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